

small air forces observer

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April 2007

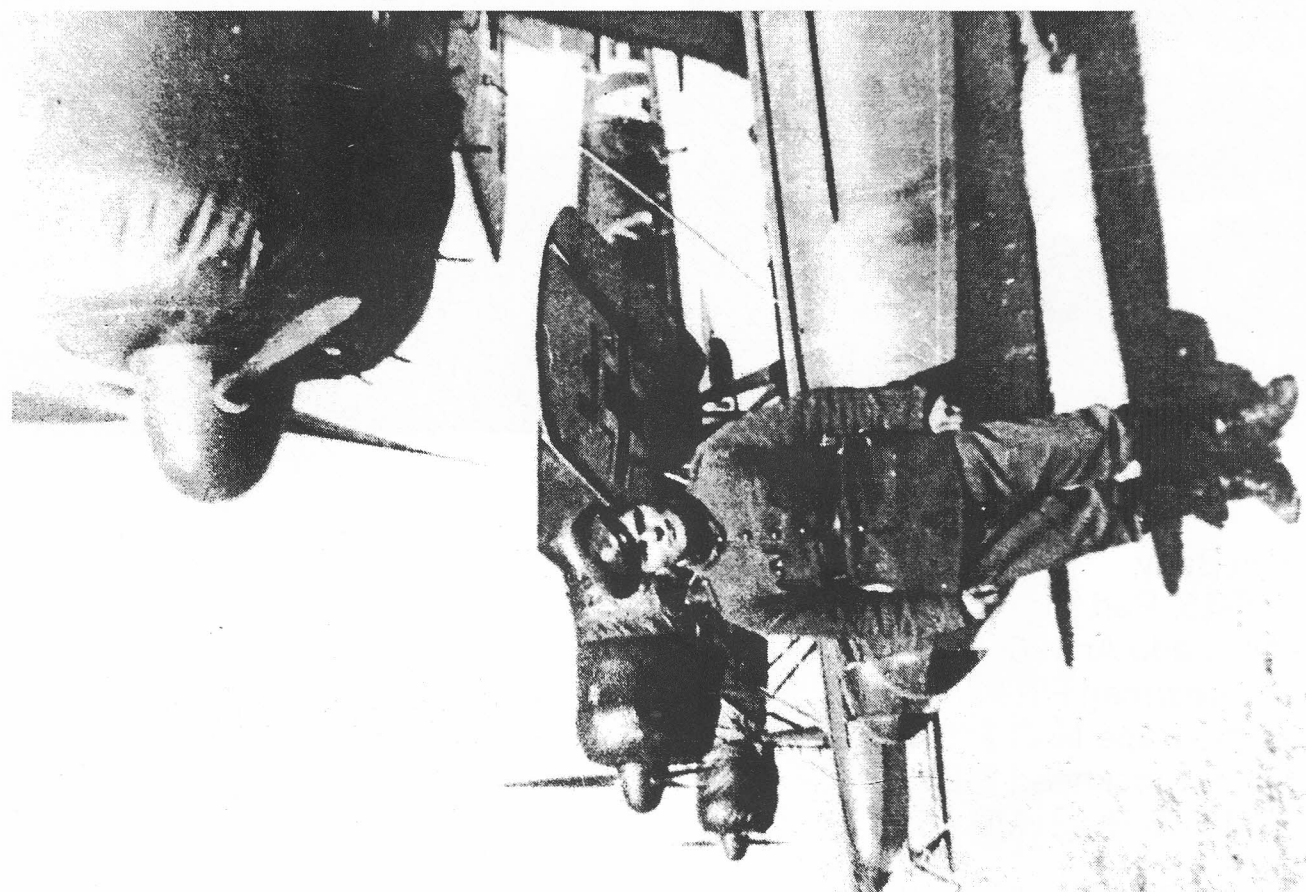
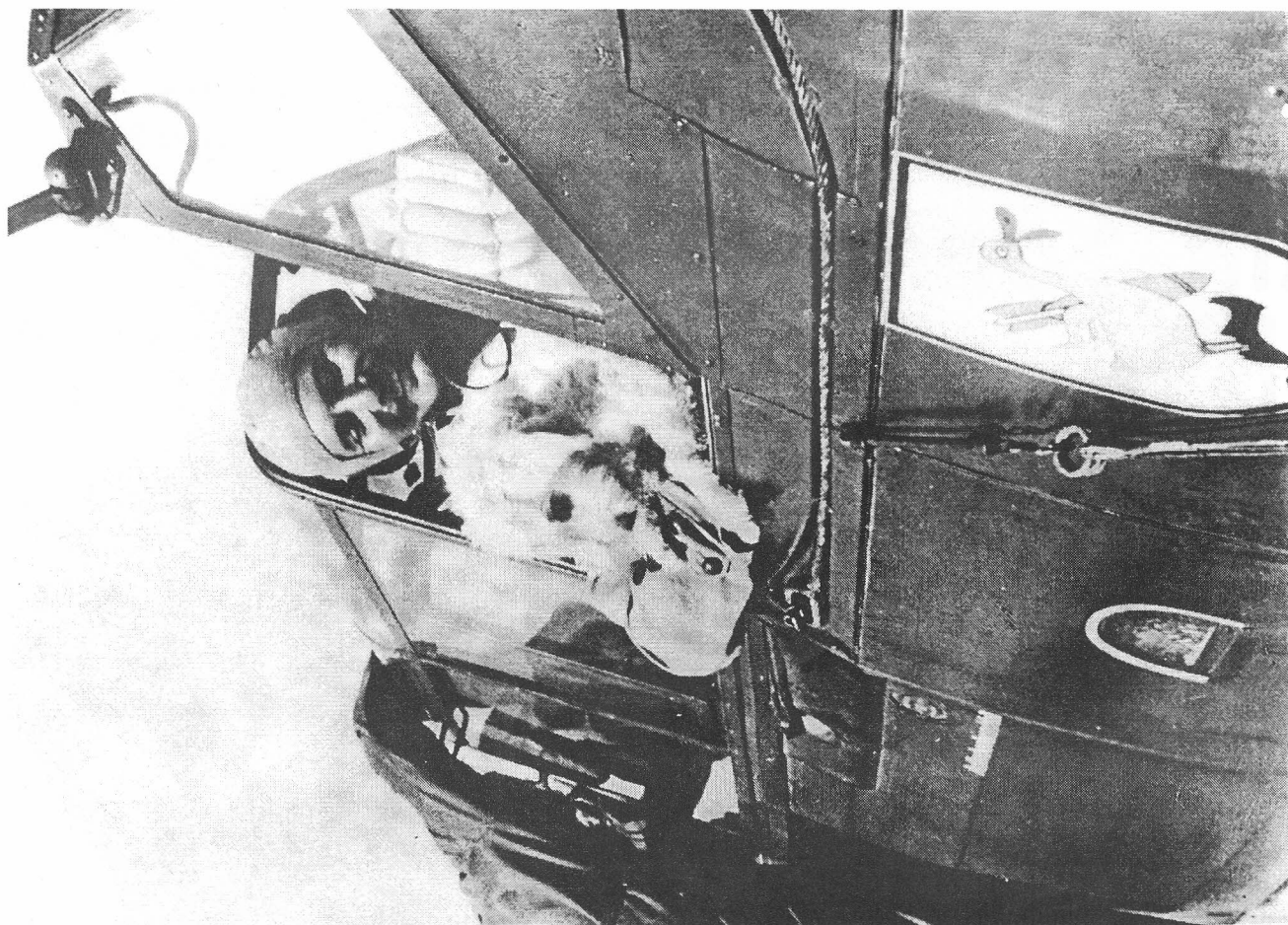
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Ansaldo Baby
Israeli F-15: Part 1)
Foreign Arado Ar 196
Iranian Stearman PT-17
Nieuport-Delage Ni-D.580
Uruguayan Lockheed F-80
Greek Marcel Bloch MB.151

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SMALL AIR FORCES OBSERVER

The Journal of the Small Air Forces Clearing House

E-Mail: saf@redshift.com

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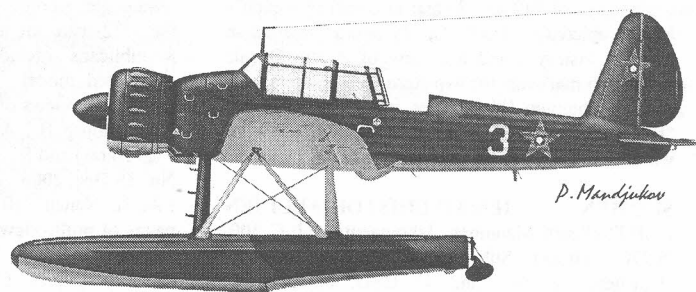
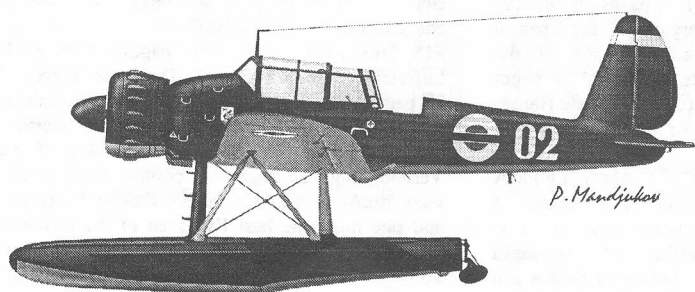
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SAFCH WEB SITES: See SAFO photos in color and chat with members at <www.bartoli.com/saf>. Also see our Small Air Force IPMS/USA Special Interest Group (SIG) web site at <<http://hometown.aol.com/rotorfrank/SmallAirForce.html>> for photos of models by the members.

COVER PHOTO: This photo of a Bulgarian Arado Ar 196 introduces the article on the use of the Ar 196 by countries other than Germany. This Article begins on page 122. The two side-view drawings below illustrate the Bulgarian national making carried immediately after WWII (left) and after the Communist takeover (right). All photos in this article are via Michel Ledet of Editions Lela Presse.



AUSTRALIA

AUSTRALIAN PLASTIC MODELLERS ASSOCIATION (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues airmail A\$40. International payment is best handled via Paypal at iansharyn@bigpond.com.au). Web Site: www.apma.org.

4-06 (32 pages) "RAAF Catalina Colours (Pt 1)" 5 pages covering the first batch of Catalinas diverted from RAF order including 4 side- and 4 top-view drawings. "Sir Hubert Wilkins and his aircraft (Pt 2)" 3 pages including a 2-page 4-view drawings of Blackburn Kangaroo G-EMAJ. "Odd Bods and Invaders: a USAAC Beechcraft C-45" one page with a side-view drawing of a C-45 in Australia that was evacuated from the Philippines. Half-page side-view drawings: Congolese C-47 Dakota; Hudson Mk IV VH-SMM; and Bulgarian Bf 109G-6. Non-aviation articles: "River Monitors Pt 3" (Hungarian); "Land Rover: a short history"; "PzKpfw II Flamm Ausf A and B"; "TNC-45 Fast Attack Craft" (Bahrain & Kuwait); "Slovenian and Iraqi HMMWVs"; and "Tren Blindado en Espana (Pt 1)".

1-70 (28 pages) "Dornier Do 24" 7 pages including 6 photos and 5 side-view drawings [Luftwaffe (2), French, Spain, Dutch East Indies]. "Dornier Do 26" 3 pages including 3 side-view drawings. "Photo-Recce Spitfires" one page on Mk. I variants including one side-view drawing. "English Electric Canberra" 3 pages on various marks including 7 photos (one RAAF). "T-6 en Afrique Française du Nord" 2 pages including 3 photos and one side-view drawing. Other articles are: "The Indian Pattern Crossley Armoured Car", "China River Gunboats", "Vancouver Beaver Heaver", "T-34 Flak Panzer", and "Modelling while Travelling".

AUSTRIA

OFH NACHRICHTEN (Oesterreichische Flugzug Historiker, Pfenninggldf 18/2/14, A-1160 Wien. Write for free sample.)

4/06 (40 pages) "Neu im Aviatikum Messerschmitt Bf 109G" 6 pages on restored Gustav including 12 photos (3 in color). "Erfinder und Flugzeugbauer Ing. Anton Fiala: Teil 3" 6 pages including 3 photos and a full-page color side-view drawing (Aviatik D.I Berg). "Auch der „Doppelte Diesel“ fliegt: DA42 Twin Star Production: Die ersten 200 Maschien" 8 pages including 5 photos and a 5-page table. "Hopfner S-1" 2 pages including 4 photos. Color photos: AAF Saab 91D Safir and J-29F Tunnan.

FINLAND

IPMS-MALLARI (IPMS Finland, PL 798, 00101 Helsinki 10; 6 issues \$20.00, no check accepted due to the high redemption costs). Text in Finnish.

4/2006 (24 pages) "Junkers F13" 3 pages including 6 photos [3 of F13 and 3 (one in color) of Revell's F13 completed as 'D335' "a key aircraft in Finnish aviation history"] and a review of Arctic Decals sheet with markings for two Aero O/Y Junkers F13. "RF-4b Phantom II" 2 pages including 5 photos. "IPMS Open 2006" 6 pages including a list of winning models and 45 color photos.

SUOMEN ILMAILUHISTORIALLINEN LEHTI (Pentti Manninen, Jakomaentie 8 b C 300, 00770 Helsinki. Subscription: Europe 26 euro, elsewhere 32 euro, and 41 USD. Payment by International Postal Order or in cash notes; no

cheques accepted because of high redemption rates). Each issue includes a 2-page English summary.

4/2006 (24 pages) "DH.100 and DH.115 Vampire in Finland: Part 4" A 6 pages discussion of the structures, systems, and flying quality of the DH.100 including 4 photos and 5 sketches of details. "Karhu-48: The unsuccessful 4-seater of the Karhumäki Brothers" 8 pages including 5 photos and a full-page scale 4-view drawing. "Col. Richard Lorents: My personal view of the FinnAF and the aerial combat of the summer 1944" 3 pages including 2 photos. "Dornier Do 17Z" 3 pages including 4 photos and a table listing all FinnAF Do 17Z. "Heinrich Beauvais: An MoD test pilot" 2 pages including one photo of a German who test flew a Finnish I-153.

1/2007 (24 pages) "DH.100 and DH.115 Vampire in Finland: Part 5" 5 pages on the Vampire trainer in Finland including 5 photos and the history of all nine DH-115. "Neman R-10" 5 pages on the "least important war booty aircraft received by Finland" including 6 photos and a 4-page scale drawing. "Double Double Trouble – Identical Collisions by Fiat G.50 of T-Lev 35 in Summer 1944" 4 pages including 3 photos. "Inventory List of Aviation Engines in FinnAF 1930-1950" 2 pages including 3 photos. "Motor Alcohol Used by FinnAF in 1941-44" 5 pages including 4 photos (VL Tuisku, Letov S-218, Fw 44, & VL Pyry). "Hawker Hart X and Y Lost in Lapland by F 19" one page including one photo of wreckage.

FRANCE

AIR MAGAZINE, TMA, 75 rue Claude Decaen, 75012 Paris, France. Six issues a year. 35 euros in France, 41 euros in Europe, and 50 euros for the rest of the world. Payment by Visa, Eurocard, Mastercard. E-mail: airmagazine@wanadoo.fr.

No. 34 Oct/Nov 2006 (72 pages) "Le bombardier CAO-700" 8 pages on rare French 4-engine bomber of modern (WWII) design including 13 photos and a color 4-view drawing (port, starboard, top, & bottom). "Le Dewoitine D.520 au Royaume du Soleil Blanc" 6 pages on Chinese D.510 including 12 photos, 2 color side-view drawings, and a 1/72-scale 5-view drawing. "Le PZL P.24 en Grece" 22 pages including 16 photos, 5 pages of multi-view color drawings, and a 1/72 scale 6-view drawings of the P.24F/G. [Ed: This article by Sid Napier is based on his series of articles in SAFO. However, the color drawings are an outstanding addition impossible in SAFO.] "Les aviateurs portugais dans la Guerre d'Espagne" 11 pages including 20 photos and 2 color 3-view drawings (side, top, & bottom) of Miles M-2 Hawk in Nationalist colors. (One is registered CS-AAL; an interesting combination of the military markings of one nation and the civil marking of another nation on the same aircraft.) "Maquette: Koolhoven FK.51" 2 pages on building the 1/72-scale kit in the markings of the Spanish Republicans including 6 color photos of the completed model. "Maquette & Livres" 3 pages including reviews of 21 kits (e.g. 1/72-scale Hansa-Brandenburg B.1 and Arado Ar 65, and 1/48 PZL P.23 Karas) and 8 books.

No. 35 Dec. 2006 / Jan. 2007 (72 pages) "Le FMA I.Ae.30 Nancu" 10 pages including 21 photos, 2 pages of multi-view scale drawings, and a color 4-view drawing. "L'Escadrille de Sondages Meteorologiques" 6 pages including 14 photos and color side-view drawings of 4 Spanish He 111. "Le

Latecoere 290" 28 pages including 47 photos, 2 pages of multi-view 1/100-scale drawings, two 2-view color drawings, and 11 color side-view drawings. "L'Avia B-33 (1^{ère} partie)" 14 pages including 38 photos, two 3-view color drawings, and 4 color side-view drawings. "Maquette & Livres" 4 pages including reviews of 22 kits (e.g. 1/72-scale Saab B-5, RAAF/RNZAF Buffalo Mk.I, RAAF Seagull V, Israeli Mirage IIICJ, Spanish Fury, & Yugoslav Fury) and 6 book (e.g. *Czechoslovak Prototypes (Part I)* and *Zlins*).

AVIONS: Toute l'Aeronautique et son Histoire (Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 50 euro for 6 issues).

#155 Janvier/Fevrier 2007 (72 pages) "Junkers 87B Stuka!" 20 pages, 44 photos, color cover painting, one 2-view (top and side), 8 color side-view drawings (one Condor Legon), and 2 pages of scale drawings. "Frank 'Chota' Carey" 9 pages on RAF ace (26 victories including 7 Japanese) including 22 photos, and 4 color side-view drawings [Hurricane (2), Spitfire, & Thunderbolt]. "Caudron Simoun (2^{ème} partie)" 20 pages on military service including 60 photos, a color 2-view drawings (top and side), and 8 color side-view drawings (French, Vichy, Free French, & Luftwaffe). "Les Caproni 310 du Cuerpo Aeronautico Peruano" 5 pages on the Libeccio in combat over Ecuador, April 1941, including 13 photos, and 3 maps (one of Ecuador and 2 of combat activities). "Ruigenhoek, le terrain oublié de mai 1940" 6 pages including 20 photos (mostly Fokker C.V, C.X, & a pair of Koolhoven FK.51). "Le Pe-2 dans l'aviation Yougoslave (2^{ème} partie)" 7 pages including 14 photos, 2 color top views, and one color 2-view (top & bottom).

#156 Mars/Avril 2007 (72 pages) "Lancaster: Best of the Best" 11 pages including 23 photos, color cover painting, and 6 color side-view drawings. "Junkers 87 B Stuka: Partie II" 12 pages including 29 photos (with 10 in contemporary color), a color 2-view drawing, and 8 color side-view drawings. "Le Potez 56: Partie I, Les appareils civils" 17 pages including 36 photos, table listing individual aircraft, and 7 color side-view drawings [prototype, French civil (1), Spanish civil (1), Romanian civil (3), & Romanian military (1)]. "Le conflit d'Asie Mineure 1919-1922" 16 pages on the conflict between Greece and Turkey immediately after WWI including 31 photos, a map with the front line shown for 4 dates, and 7 color side-view drawings [Greek DH.9, Spad XIII, Be.2C, & Breguet XIV; Turkish DH.9, Breguet XIV, & Spad XIII]. "Maurice Niel, mécanicien d'aviation en 14-18" 8 pages including 30 photos of Belgian aircraft.

GERMANY

FLIEGER REVUE EXTRA (Verlag Fliegerrevue, Herrn Detlef Billig, Oranienamm 48, D-13469 Berlin. 4 issues per year, \$66 surface. Payment by check drawn on German bank)

#15 Dezember 2006 (116 pages) "Die zivile Luftverkehr der DDR (Teil 4): Das letzte Jahrzehnt" 22 pages including 33 photos of the last aircraft in service with East German's Interflug. "Luftstreitkräfte der Ukraine: Vom Angriff zur Verteidigung" 20 pages, 43 photos, 4 color side-view drawings (Su-15, Su-27, Ka-29, & An-26), and one map (the best I've seen of the Ukraine). "Krieg um Kinshasa: Die AFZ auf Seiten Kabilas" 26 pages, 25 photos, 7 color side-view drawings of

Zimbabwe aircraft [Alouette III, BAe Hawk (2), Bell AB-412, Mi-24, Cessna 337, & CASA C.212), and 2 maps. "Der polnisch-sowjetische Luftkrieg 1919-1920" 22 pages, 38 photos, 15 color side-view drawings [Polish: Breguet 14 (2), DFV C.V (2), Albatros C.X, Salmson 2A2, Albatros D.III (Oef), Gotha G.IV, Bristol F.2b, & Fokker D.VII. Soviet: Nieuport 24bis (3), Nieuport 17, & Spad VII], 4 maps showing the ebb and flow of the battles on the Lithuanian front, the Lwow front, and around Warsaw (the latter is the best depiction of the "Miracle on the Vistula" that I've seen), and a table listing the names of towns in Polish, German, Russian, Ukrainian, White Russian, and Lithuanian; e.g. Lwow was Lemberg to the Germans). "Die Konigliche Jordanische Luftwaffe gestern und heute" 16 pages, 36 photos, and for the uniform buffs 10 squadron patches and air force rank insignia.

MITTEILUNGEN (IPMS Germany, Bergengruenstrass 5-7, D-1000 Berlin 38; 12 issues DM 60.00 Europe, DM 65.00 USA, DM 70.00 Japan, DM 75.00 Australia).
4/2006 (46 pages) Nothing of small-air-force interest.

ITALY

JP-4 Mensile di Aeronautica (JP-4, Via XX Settembre 60, 50129 Firenze; L 27.000. English summary of selected articles.

Dicembre 2006 (100 pages) Color photos: Brazil CASA C-295 & Hungary Gripen '34'. "Tiger Meet 2006" 5 pages with 13 photos. "Aeronautica Estone" 2 pages including 9 photos [L-39 Albatros, Robinson R44, An-2 (2), Let 410, & Mi-8]. "Incidenti - Militari" Color photo of Greek A-7E.

Gennaio 2007 (100 pages) "F/A-18 Svizzera" 4 pages on Swiss F/A-18 including 3 photos. "Aeronautica Lettone" 2 pages on the Latvian AF including 6 photos (AN-2, Mi-17, Mi-2, & Let 410). "Primo C-17 per l'Australia" 2 pages including 3 photos. "Incidenti - Militari" Color photos of Philippine OV-10 & Sri Lankan Kfir.

Febbraio 2007 (100 pages) Color photos: Colombia Super Tucano, Venezuela Su-30, & Czech AF Airbus A319. "In volo con gli Eurofighter del 4° Stormo" 10 pages including 8 photos. "Primo Spartan per la Lituania" 2 pages including 5 photos. "Alenia Aermacchi M-311" 6 pages including 9 photos. "Incidenti - Militari" Color photo of Japanese AH-15 & Mexican An-32..

NETHERLANDS

MODELBOUW IN PLASTIC (IPMS-Nederland, c/o Luuk Boerman, Kerkstraat 2, 2471 AP Zwammerdam. E-mail: lucasb@normadblend.nl.

5/2006 (40 pages) "Alle zegen komt van boven" 4 pages on building the Tamiya 1/48-scale P-47D including 13 color photos of the completed model. "Mark V Hermaphrodite: British tank uit 1918" 4 pages on building the 1/35-scale kit including 6 photos of the completed model. "Antonov 124-100 Rustan" 4 pages on building the 1/144-scale Revell kit including 18 photos. "Grijze Wolven: De U boottypes VIIc en VIId" 4 pages on building the 1/144-scale Revell kit including 13 photos. 7 pages with 46 photos of winning models at IPMS/Nederland's Euro Scale Modelling '06.

POLAND

LOTNICTWO (Krystof Zalewski, ul Grochowska 306/310, pok. 206, 03-840 Warszawa. E-mail: kz@magnum-x.pl.)

11-06 (68 pages) Color photo: Bulgarian AS 532 Cougar. "African Aerospace & Defence 2006: Ysterplaat" 6 pages including 19 photos (SAAF Gripen, CASA C-212. Hawk Mk.120, Augusta 109, C-47, Super Hind, & Cheetah; Zimbabwe Karajorum K-8 [Ed: Can anyone tell me what this is?]; and Jordanian Seabird Seeker [Ed: Can anyone provide a scale 3-view drawing of this strange bird? I believe it is being used by the new Iraqi AF.] "Nakajima Ki-44 Shoki (cz.II)" 10 pages including 14 photos and 4 color side-view drawings. "Polskie Lotnictwo myśliwskie 1936-1942" 6 pages on Polish fighter projects that did not reach fruition, including color paintings or color side-view drawings of the following aircraft in Polish squadron markings: PZL-55, PZL-50, MS.406, Hawker Hurricane, Seversky E-1, & Curtiss Hawk 75. [Ed: Looks like a great theme for a "What If" model collection. Included is a DCD on the Polish F-16 Jastrzab. [Ed: I can't get it to play on my Panasonic DVD player, but my brother-in-law can play it on his Sony DVD player.]

12/06 (68 pages) "Suchoj Su-39" 8 pages including 15 photos and a multi-view scale drawing. "Messerschmitt Bf 110 - wersje nocne (cz.II)" 9 pages including 12 photos, 6 color side-view drawings, and a multi-view scale drawing (Bf 110G-4/R3). "Ekport polskiego sprzetu lotniczego do Rumunii w latach 1926-1939" 8 pages including 8 photos (one Romanian PZL.11b), and 2 color side-view drawings (PZL P.11/II and IAR CV-11). "Platzschutzstaffel Pitomnik nad Stalingradem" 7 pages including 8 photos and 4 color side-view drawings (Ju 52g3m, He 111H-6, Bf 109F-4, & Bf 109G-2; the latter in Soviet markings).

1/07 (68 pages) "Publiczny debiut Gripena SAAF w RPA" one page including one photo. "Rodzina Dassault Falcon (cz.I)" 7 pages including 15 photos (including Norway AF and Polish & Bulgarian civil). "Orty spod znaku kazachskiego stonca" 4 pages on Kazakhstan AF including AoB 05/06 and 6 photos (Mi-8 & MiG-29) [Ed: On the MiG-29s the Kazakhstan national insignia is a red star with a yellow disc in the center, while the Mi-8 carries a blue star with a yellow disc in the center all on a green disc.] "Australijski F-111C wiecznie zywy" 7 pages including 12 photos and a 5-view scale drawing. "Samolot rozpoznawczy Il-20" 5 pages including 10 photos and two 3-view scale drawings (Il-20 & IUI-20RT). "Pelican 22' Avro Shackleton w RPA" 2 pages on SAAF Shackleton including 4 photos. "Zwyciestwo nad Gandawa 'postscriptum'" 6 pages on the Polish participation in Operation Bodenplatte, 1 January 1945, including 12 photos, one map and 3 tables. "Zatopienie lotniskowca Lexington" 8 pages on the loss of the carrier Lexington in the Battle of the Coral Sea including 11 photos and 4 color side-view drawings (Zero, Nate, Val, Wildcat). "Eksport polskiego sprzetu lotniczego do Rumuni w latach 1926-1939 (cz. II)" 7 pages including 8 photos and 3 color side-view drawings (P-11b, P-11f, & PZL-24E). Included with this issue is a 2007 calendar with photos of various Polish defense-industry products (only two a/c: a Polish F-16 & the Aero L-159B prototype).

USA

WWI AERO (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$42.00 USA or \$47.00 overseas).

#195 Feb 2007 (144 pages) "Octave Chanute: On wind's wings" 14 pages including 7 photos. "The 1913 Schneider Trophy Race Winner" 8 pages including 6 photos and 3 pages of 1/72-scale multi-view drawings. "The Gallaudet Story: Part 15 The Model D-3 Atlantic Cruiser and Battle Cruiser" 9 pages including a 4-page 3-view scale drawing. "Ernie 'Aircraft' Hall and his Wright Flying Boat" 5 pages including a 2-page scale 3-view drawing. "A Curtiss JN-4B - Like New" 4 pages including 9 b&w photos and a beautiful color photo of the Jenny in USN colors in flight. "Igor Sikorsky's 1920 Prophecy about the Future of Aviation" 5 pages including 2 photos of two of Sikorsky's unsuccessful 1909 helicopters. "Museums/Organizations" 9 pages including 17 photos and a 2-page reproduction of a 1910 factor drawings of the Bleriot XI. "Aircraft" 7 pages including 23 photos. "Times Tarmac" 7 pages including 22 photos. "Drawings" 12 pages (e.g., Morane Saulnier Type N; Turcat-Mery-Rougier; & Zeppelin LZ-CII) "IdentificationX" 2 pages with 4 photos. "Models" 9 pages including 24 photos. "Publications" 15 pages with reviews of 11 books and 6 magazines.

SKYWAYS: The Journal of the Airplane 1920-1940 (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$42.00 USA or \$47.00 overseas.).

#81 Jan. 2007 (80 pages) "Alfred W. Larson and his Airliners" 10 pages on a giant airliner (16 passengers) of 1919 including 12 photos and two 3-view scale drawings. "Northrop Attack Aircraft 1933-1937" 7 pages including 13 photos [Gamma 2B, Gamma 2C (2), Gamma 2ED-C, Gamma 2F, A-17, XA-16, A-17A, 8A-3P (Peru), BT-1, XBT-2 (2), & SBD-1]. "The Boeing 80 Revisited" 11 pages including 19 photos and 4 pages of super-detailed multi-view scale drawings. "Cockpits: Boeing 80 Trimotor Airliner" 2 pages with 4 photos. "The Curtiss-Wright Model 23 Basic Combat Trainer" 8 pages including 14 photos, a small 3-view drawing, and a 2-page cutaway drawing. "Bell YFM-1 Airacuda Model" 4 pages on a scratch-built 1/32-scale Airacuda including 10 photos [Ed: I am eagerly awaiting the release of Valom's Airacuda in 1/72-scale. It's not small air force, but it's real funky.]. "Models" 3 pages including 6 photos. "Identification Unknown" 2 pages including 7 photos. Reproductions and Restorations" 2 pages with 4 photos of a restored Zenith Z-6A. "Skyways Reviews" 3 pages with reviews of 8 books and 3 magazines.

ESM 72 (Model-Aire International, 38 Prince Royal Passage, Corte Madera, CA 94925. E-mail: maiesm72@aol.com. Web site: members.aol/Maiesm721/maiwebpg.html.)

Quarterly. \$25.00 for four-issue volume. \$30.00 outside the USA. Back issues available at same price per volume.

Vol. 9, No. 3 (pages 115-169) "Aircraft by Kit Manufacturer" 15 pages UDC to Vzlyoy. "Updates" 33 pages.

Peace Fox

The Israeli Air Force McDonnell Douglas F-15 Eagle

Part 1: The F-15A/B "Baz"

Doug Dildy

It was probably fitting that the first McDonnell Douglas F-15 Eagles arrived in Israel on the Sabbath. Fitting, but unfortunate for the government that ordered them, the reception and acceptance ceremony went into Friday evening. (Note 1) This perceived sacrilege prompted religious parties in the Israeli parliament (Knesset) to topple the first government of Prime Minister Itzhak Rabin. So the first casualty of the new Israeli F-15s was the government that had ordered them!

By 1975, after the Six Day War (1967), the War of Attrition with Syria and Egypt (1969-1970), and the Yom Kippur War (1973), the Tsvah Haganah le Israel-Heyl Ha'Avir (Hebrew for "Israeli Defense Force/Air Force" or IDF/AF) had lost almost 200 combat aircraft (Note 2) and those that remained in the inventory had been heavily used and were getting old. Worse, the air arm of Israel's most bellicose neighbor, the Syrian Arab Air Force (in Arabic; Al Quwwat al-Jawwiya al Arabiya as-Souriya, here abbreviated SyAAF), was receiving much more modern warplanes, such as the MiG-23MS/MF Flogger and MiG-25 Foxbat, from the Soviet Union. (Note 3) Therefore, upgrading the seemingly perennially embattled nation's air defense forces quickly became the highest priority.

A number of choices for a new interceptor and air superiority fighter were available when General "Beni" Paled, the IDF/AF Chief of Staff, came to the US looking for a new fighter aircraft for his service. The IDF/AF's priorities were that their new fighter had to have a very fast reaction time (since Israel's most threatening adversaries were so close), be able to gain—and maintain—air superiority, provide long-range escort, and fly deep interdiction/strike (air-to-ground) missions. The F-15 could climb to 30,000ft (10,000m) and accelerate to .9Mach for an intercept in less than 1 minute 30 seconds from brake release, so it definitely fit the bill as a fast-reacting interceptor. Its demonstrated excellent low speed handling and dogfighting capabilities and the new look-down/shoot-down Hughes APG-63 Pulse Doppler (PD) radar made it the most likely champion in the air-to-air arena. Its fuel efficient Pratt & Whitney F100 turbofans gave it extremely long legs and the US had not neglected air-to-ground capabilities as a secondary role in its development. In a word, the McDonnell Douglas F-15 was perfect for Israel's needs.

The IAF placed an order for 25 F-15A/Bs in 1975. Although this represented only half the number needed, it was an expensive purchase, costing \$25m per aircraft. Interestingly, such was the urgency of Israel's order that four (eventually five) of the airframes delivered in the first batch came from the US Air Force's Developmental Test & Evaluation (AFDT&E) program.

At that time the Eagle was so new to the USAF that training on the new air superiority fighter had just begun in November 1974 with the acceptance of the first Tactical Air Command (TAC) F-15 at Luke AFB by the 555th TFTS, and the first F-15 was accepted by the first TAC operational squadron—the 27th

TFS at Langley AFB, Virginia—in January 1976. Additionally the first twelve pre-production airframes (1971-models, labeled "F-1" through "F-10" for the single-seaters and "T-1" and "T-2" for the two TF-15 trainers) were being used by McDonnell Douglas for Contractor Developmental Testing & Evaluation at Edwards and eight (called "F-11" through "F-18") had been built for the F-15 Joint Test Force (F-15 JTF) to conduct AFDT&E, also at Edwards. So the F-15 Eagle was brand new to the USAF, undergoing further testing, pilot training and the build up of the first operational squadrons at the same time that Israel placed the order for its first 25 examples of this awesome new fighter. It is a tribute to the design integrity of the Eagle—as well as a measure of the intensity of the Israeli's need—that four AFDT&E jets were released to the F-15's first Foreign Military Sales (FMS) customer.

Enter the "Baz"

The first three Eagles were delivered on 10 December, 1976, under the FMS program called "Peace Fox I". These were AFDT&E airframes "F-12" (AF72-0114/#620) and "F-14" (AF72-0116/#622—see Note 4) transferred from the 6512th Test Squadron (F-15 JTF), and "F-15" (AF72-0117/#644). These were followed by "F-16" (AF72-0118/#646), which came from the 555th TFTS, later that month (Note 5). A fifth pre-production F-15A ("F-18"/AF72-0120/#649) was delivered in 1982 as a replacement for an F-15A (serial numbers unknown) that was lost in August 1981 due to birdstrikes (Note 6). All IDF/AF pre-production aircraft retained their original small speedbrakes and had the small diameter mass balance pods atop the vertical stabilizers instead of the much larger ALQ-128 pod on the left vertical stabilizer.

The first of 19 brand-new F-15As and two B-models were delivered in late 1977 as Phase II of Peace Fox, all arriving in-country by 1978 (Note 7). The IAF gave the F-15A the Hebrew name Baz ("Falcon"; curiously, or perhaps cunningly for communications security reasons, they named the F-16, which was acquired about the same time, Netz or "Sparrowhawk"—Note 8).

The IDF/AF initially sent five pilots to Luke AFB in the US to learn to fly the Baz (Note 9), and these men returned to Israel to create an intensive training program that rapidly brought more pilots up to speed as quickly as possible. In all, the initial cadre of IDF/AF Baz pilots flew training sorties for eighteen months before they flew their first combat mission. The pilots and jets were organized into 133 Tayeset (Hebrew for "Squadron") which was a new unit established just for Israel's F-15s.

All FMS sales aircraft are subject to US export laws tailored specifically to each customer. The Bazes were delivered minus some components usually found within the USAF F-15's Tactical Electronic Warfare Set (specifically, the ALQ-128 detectors and ALQ-135 jammers). Additionally, the APG-63 radar was "detuned" to reduce detection and tracking capability

compared to US F-15s. Similarly, classified "US only" radar modes were deleted entirely. Israel installed its own Elisra Electronic Warfare (EW) suite to replace the missing US components, including the installation of indigenous chaff/flare dispensers and an internal Electronic Countermeasures (ECM) suite.

Additionally, the IDF/AF modified its F-15s to permit covert scrambles. The two main modifications were the deletion of the "weight-on-wheels" (WoW) override switch preventing the radar from transmitting while the aircraft was on the ground, and the installation of a communications port on the underside of the fuselage into which was plugged a cable allowing the pilot to receive target information without having to broadcast it over the radio. Removal of the WoW switch enabled Bazs sitting on air defense alert to scan a volume of sky ahead of them and the "no radio" alert launches denied the enemy the opportunity to eavesdrop on scramble vectors and commands, thus allowing the Bazs to operate very discretely. Finally, the IDF/AF modified all of its F-15s to carry the Israeli-built Rafael Shafrir 2 ("Dragonfly") infra-red (IR) guided air-to-air (AAM), as well as Rafael Python 3 and 4 advanced IR AAMs (Note 10).

133 Tayeset Goes Into Combat

In April 1979, the historic Camp David Accords signed the previous September, went into effect, American diplomacy having effectively removed Egypt from being an immediate threat to Israel. Meanwhile, on the other front, Syria had become even more menacing, taking advantage of the five-year old Lebanon civil war between Christian Phalange Party militia and various Muslim groups, including Lebanese Druze and the stateless Palestine Liberation Organization (PLO). Ostensibly to stabilize the conflict-torn land and restore peace, but actually in support of the PLO, in May 1976 Syria had inserted its 3rd Armored Division, driving across the small country along the Beirut-Damascus highway under the cover of MiG-21 fighters, Su-7B ground attack jets and Mi-8 helicopters. To provide coverage of the south flank—facing Israel—the Syrian 10th Armored Division later deployed across the Beka'a Valley and MiG-21s, new MiG-23BN ground attack jets, and old obsolete MiG-17s were based at Rayak, an airfield and city on the Beirut-Damascus highway in the eastern Lebanon.

Believing a Christian government in Lebanon was better than a Muslim one, Israel supported the former and kept tabs on Syrian force dispositions with overflights of McDonnell Douglas RF-4E Phantoms (Note 11) and Ryan Teledyne Firebee II reconnaissance drones (Note 12).

On 27 June 1979, Israel launched one of a series of air raids during this period targeting PLO terrorist bases, arms caches and training camps in southern Lebanon. This day's strike package included McDonnell F-4 Phantoms and Douglas A-4 Skyhawks and these went north to hit PLO terrorist bases on the coast between Sidon and Damur, Lebanon. The Syrian AF challenged the raid by launching 8-12 MiG-21 Fishbeds (Note 13), but had not reckoned on the IDF/AF's new F-15s and IAI Kfir C2s flying top cover for the raiders.

The 133 Tayeset provided cover with a four-ship of F-15s, led by the squadron commander, LtCol Benyamin "Benny" Zinker (with former commander Eitan Ben-Eliyahu as the second element leader—see Note 14), and supported by another formation of two F-15s and a pair of Kfir C2s from 101

Tayeset—see Note 15. The first formation flew into Lebanon at 15,000ft (5,000m) and established a Combat Air Patrol (CAP) orbit between Lake Karoun in the Beka'a Valley and the port of Sidon, with the second, mixed formation in the same area, orbiting at 12,000ft (4,000m) about 30 miles (48km) behind the all-Baz formation. Meanwhile IDF/AF ground radar units and the Grumman E-2C Hawkeye (Note 16) AWACS (Airborne Warning and Control System aircraft from 192 Tayeset) reported two formations of MiGs had taken off from a Syrian base (probably Rayak, Lebanon) to the northeast and were headed their way. The F-15s picked up the radar contacts, but were initially ordered to withdraw to the west, luring the MiGs well away from their air base.

When given the order to "commit", LtCol Zinker turned his formation around, jettisoned fuel tanks, accelerated and soon located the approaching MiGs on radar. Zinker and his wingman, 5.5 "kill" ace Maj Moshe Melnik, both fired AIM-7F Sparrows which, in shades of Vietnam, none of them worked and the Israelis were forced into a visual dogfight. The F-15 proved supreme and Maj Melnik (in #663) quickly got in behind one MiG-21 to shoot it down with a Rafael Python 3

According to Melnik, "A pair of MiG-21s crossed my flight path at a slightly lower altitude. At a certain point they changed the direction of their [turn]—a sign that they were paying attention to us. Five seconds passed from the moment I identified them to the moment I had one of them in my sights. I fired an accurate missile which split the MiG in two. Barely a minute passed and four more MiGs found themselves planted firmly in the ground. The radio was full of our pilots shouting 'Hipalti! – I scored a kill!' The other MiGs started making their getaway and we intended to give chase, but eventually we had to give up."

One of these calling "Hipalti!" was Yoel Feldsho (in F-15B #704) who spotted a MiG-21 maneuvering towards the tail of Melnik's fighter and promptly shot it down with an AIM-7F. Meanwhile his flight leader, LtCol Ben-Eliyahu (in #689), spotted two Fishbeds attempting to spiral out of the fight and closed in for the kill. Following, their former squadron commander into the fray, the mixed CAP, led by Yoram Peled (in #672), destroyed the trailing Fishbed with an AIM-9G while Ben-Eliyahu shifted his aim and destroyed the other MiG-21 with his F-15's M61A1 20mm Vulcan cannon.

By this time the surviving Fishbeds were all trying desperately to escape. One Kfir (#874 flown by Capt Shai Eshel) hit a fleeing fifth MiG with a Rafael Python 3 IR AAM (Note 17); the MiG pilot ejected safely.

Despite this setback, Syrian MiG-21s continued to occasionally attempt to intercept the IDF/AF's reconnaissance overflights. Consequently Benny Zinker decided to set a trap for the SyAAF MiGs. On 24 September, he led a two-ship formation as the "bait", simulating a pair of RF-4Es on a reconnaissance run, while his deputy commander, LtCol Avner Naveh, followed with a four-ship formation of "shooters". Six MiG-21 Fishbeds were launched and attempted to intercept. Four MiG-21s were shot down, two of them by Avner Naveh (in #695), who would eventually be credited with 6.5 aerial victories.

These two one-sided engagements seemed to dampen Syrian enthusiasm for intercepting Israeli overflights of Lebanon and there were no further combats recorded until almost a year later,

when in August, 1980, four SyAAF Fishbeds attempted to intercept a pair of IDF/AF RF-4Es making a reconnaissance run over southern Lebanon. This flight was escorted by another mixed CAP—two F-15s and a pair of Kfirs—and after being vectored into range, the Baz flight leader locked onto the leading pair of MiG-21s while his wingman, Ilan Margalit (in #696), locked onto the leader of the second pair. The first two MiG-21s turned away (attempting to lure the escorting fighters away from the RF-4s) while the second pair continued toward their targets. In range, Margalit fired an AIM-7F which destroyed the MiG, the Syrian pilot successfully ejecting from his disintegrating fighter.

On the last day of the year there was yet another of these intermittent clashes, this time when four SyAAF MiG-21s attempted to intercept an IDF/AF strike against PLO strongholds in southern Lebanon. In another mixed CAP formation, Yoav Stern (in #695) and Yair Rachmilevic (in #646/former AF72-0118) led a pair of F-4E Phantom IIs in the attack. Rachmilevic dispatched one Fishbed with a Python 3 IR missile while his flight leader and the F-4s engaged another. Stern fired an AIM-9G while the Phantoms shot three missiles at the hapless MiG, which obliged by finally exploding. The victory was subsequently awarded as a "shared kill" by both Stern and the Phantom wingman. While both Syrian pilots successfully ejected, one was killed by the local Lebanese.

With the very limited MiG-21s' inability to successfully engage IDF/AF air raids or reconnaissance overflights, the Syrian AF hoped to have better results with its new MiG-25PD Foxbats. Several unsuccessful tries were made but they were worrisome enough for the IDF/AF to set another trap, hoping to deter further attempts. On 13 February 1981, a pair of RF-4E reconnaissance Phantoms flew across Lebanon at 40,000ft, scorching along at over Mach 1.0. Some 20,000ft beneath them LtCol. Benny Zinker (flying #672), hiding "under" the radar return from the Phantoms. Two Foxbats launched from al-Nasariyah and were soon at the Phantoms' altitude and approaching at high Mach. The unarmed RF-4Es dumped chaff and sliced away to return to Israel while Zinker locked up the lead Foxbat, zoom climbed to 30,000ft and unleashed a salvo of three AIM-7Fs. This time the Sparrows worked as promised and one Foxbat was flamed. The other fled back to its base.

Operation "Opera"

In September 1975 the Iraqi Vice-President Saddam Hussein al-Tikrit and French Premier Jacques Chirac signed an agreement to build a 40megawatt (MW) nuclear reactor complex capable of producing weapons-grade Plutonium-239 (Pu-239). For \$300M provided by Saudi Arabia, the French designed and began to build a two-reactor complex named "Osiris" (Note 18), although it soon became known by the more popular "Osirak". The complex was to be built at Al-Tuwaitha, about 12 miles (19km) southeast of Baghdad, and consisted of two reactors: Tammuz-1 (Note 19) was a high-power, light-water open-core materials test reactor (MTR) used for irradiation of target materials and Tammuz-2 was a low-power reactor for research and training. Together the two reactors could produce enough Pu-239 to make two atomic bombs. For another \$200M, Iraq contracted the Italian company SNIA-Techint to build a plutonium separation and handling facility and a uranium refining and fuel-production plant. Construction of the

infrastructure was completed in the late-1970s and the French and Iraqis began working on the MTR reactor.

During the Iranian-Iraqi War, the Islamic Republic of Iran Air Force (IRIAF) raided the facility attempting to set-back Iraqi progress towards what (then) President Hussein called "the first Arab attempt at nuclear arming". On 30 September 1980 two IRIAF McDonnell Douglas F-4Es (from the 33rd Tactical Fighter Squadron) braved an SA-6 battery, three Roland 2 batteries and 30-40 23mm and 37mm AAA guns to drop a dozen high-drag Mk.82 500lb "Snake Eye" bombs on the building east of the Tammuz-1 reactor, hitting the water cooling tower, laboratories, and facilities for treating liquid radioactive waste. The raid set the construction back two months.

On 30 November a single IRIAF RF-4E reconnaissance Phantom overflew the facility, its photographs showing that the Iraqis and French were back to the where they were before the raid. Two days later the Iranians, in a surprising and almost unbelievable move, are said to have passed the photos to the flight crew of an Israeli Boeing 707 which on a routine stop over at Mehrabad International Airport. It was now the IDF/AF's turn to do something about the "Osirak" reactors. Returning to their construction schedule, the reactors would be operational by the end of June the next year.

The IDF/AF had been training to do so since September, the hand-picked pilots practicing low level navigation flights back and forth across the short length of Israel (only 210 miles, only a fraction of the distance to Baghdad) and the Sinai to condition themselves for the intense concentration needed for the 90-minute ingress to the target at exceptionally low altitude. They practiced "dry" deliveries against an Israeli radar site in the Negev Desert, the radar "bubble" providing a simulation of the concrete "dome" that encased the Tammuz-1 reactor.

After nine months of practice, on Friday, June 5th, 1981, twelve F-16s and eight F-15s (the planned strike/escort package of 16 fighters plus four spare F-16s) deployed to Etzion air base, a relatively remote airfield on the eastern edge of the Sinai, near the Gulf of Aqaba (Note 20). After a quiet Sabbath, Operation "Opera" (Note 21) was mounted the following Sunday (Note 22) in the hopes that the French and Italian workers would be resting that day and not at the target. The strike force consisted of eight General Dynamics F-16A "Netz"—four from 117 Tayeset and four from 110 Tayeset (Note 23). The strike force would be led by 117 Tayeset commander, LtCol. Zeev Raz, with LtCol. Amir Nachumi, the 110 Tayeset commander, leading the second set of four. Each F-16 would be loaded with two low-drag ("slick") Mk.84 2,000lb bombs, three external fuel tanks, and two wingtip-mounted AIM-9Ls for self-defense.

The "strikers" were to be escorted by six F-15A/Bs from 133 Tayeset. These were led by the brand new squadron commander, LtCol Moshe Melnik, and they carried four AIM-7Fs, four AIM-9Gs, two external tanks and an ALQ-119 jamming pod on the centerline (Note 24). Melnik flew a two-seat F-15B with fellow MiG-killer Yair Rachmilevic in the backseat to assist in navigation and timing and to work the EW pod. Melnik's wingman was his former boss, LtCol. Benny Zinker, and they will be positioned to cover the entire formation's vulnerable "six o'clock" and to climb above the strikers to mask them with electronic jamming as they enter the target area.

Another element consisted of the first 133 Tayeset commander, (now) Col Ben-Eliyahu leading another MiG-killer,

Yoram Peled, and will fly off to one side to protect that flank from any interceptors. A third two-ship (pilot's names not known) will fly off to the other side, protecting that flank. The strike force would be followed by a fourth element of Bazs. In the lead was an F-15B flown by Mickey Lev, with an F-15A as his wingman. The two-seat Baz had been modified into a radio-relay platform by installation of a single sideband high frequency (SSB HF) radio and the gluing of the long HF wire antenna to the large canopy. In the back seat was the head of the IDF/AF's Operations Department, Col Aviem Sella, the chief planner of the whole operation.

The Israeli pilots stayed in makeshift quarters on the rather austere, remote base for two nights and midday on Sunday, they attended their mission briefing (Note 25). So critical was the success of this operation that IDF Chief of Staff General Raphael Eitan and IDF/AF Commander, Major General David Ivri, were present as well. The mission was fraught with considerable political risk because from Etzion the route of flight was planned pass through gaps in the Saudi, Jordanian and Iraqi air defense radar networks on a relatively direct path to Tuwaitha. (Note 26)

The strike force and escorts started engines at 1455hours and after being "topped off" with fuel with their engines running, began to takeoff to the north. The Bazs blasted off first, an hour later, and curved around to the south to join up while the Netzs began taking off at 1600. (Note 27) They joined into two four-ship formations and the F-15s joined them as they crossed the Gulf of Aqaba at 2,000ft (700m) and clipped Jordanian airspace before descending to below 200ft (60m). "Bunch" flight was out in front with "Chisel" flight following two miles behind. On each flank, about 4,000ft to the side, was a two-ship of F-15s and the third element of Bazs trailed 4,000ft behind the "Chisel" F-16s. Twenty miles behind, the fourth (radio relay) element of F-15s followed strike force across the mountains and the an-Nafud Desert of northern Saudi Arabia. The 16 jets ran with their radars and ECM gear/pods off and in total radio silence so as not to announce their presence or approach by any form of electronic emissions. They stayed low, weaving through the valleys among the 5,600ft high coastal mountain range to hide from Saudi and Jordanian radars and then cruised across the desert at 100ft (30m) and an economical 360knots (.6Mach). When the external tanks ran dry, they were jettisoned in an empty part of the desert.

Passing the 38degrees East latitude LtCol Raz, flying "Bunch 01", called out the codeword "Moscow". This quick radio call—too short and nebulous to alarm any would-be listeners—was received by the IDF/AF Boeing 707 (an electronic surveillance aircraft being used as a flying command post) orbiting high over the Negev Desert, and was passed on to the IDF/AF HQ, thence to the Israeli Prime Minister, Menachem Begin.

Passing 40degrees East (Point "Zebra") Lev's trailing element split off from trailing the strike force, climbed and set up an orbit in northern Saudi Arabia to pass further information from the strike force if and when needed. Additionally, they kept a radar watch on the western-most Iraqi (H-2 and H-3 airfields) and into Jordan. Crossing the Iraqi border, the main formation "pushed it up" to 390knots (.65Mach) for the run-in to the target.

Passing the IP (Initial Point for the bombing run), Lake Bahr al Milh about 20 miles (40km) from the target, the six Bazs

powered up their APG-63 radars and the two formations on the flanks zoomed to 20-25,000ft and split off into CAP orbits to maintain radar surveillance of Iraqi air bases on either side of Baghdad. To the north, one two-ship monitored al-Habbaniyah and al-Taqqadum air bases west of the city—and would provide egress coverage from the target area—while the other looked southeast for any MiG launches from the giant Ubayadah bin Al Jarrah air base at Kut. As the strike force crossed the Euphrates River, Melnick and Zinker pulled up out of formation and zoomed to 20,000ft to keep an eye on the airfields around Baghdad itself: the Saddam International Airport, al-Muthenna, al-Rasheed and Salman Pak. As they climbed, they turned on their ECM pods, which had been tuned specially to jam the Iraqi search radars and hopefully mask the strikers beneath them.

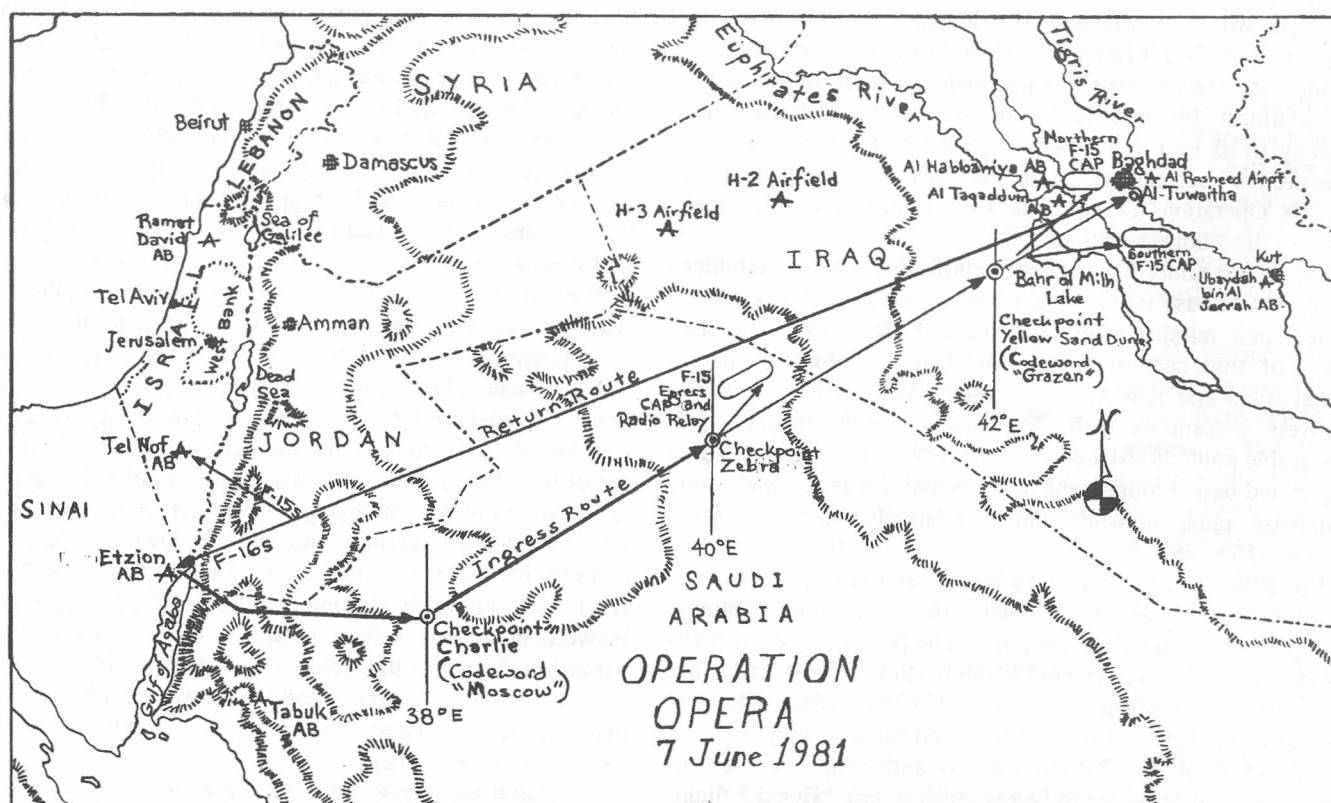
Meanwhile the eight Netzs accelerated further to 480knots (.8Mach) and split into pairs to space out their attacks. By this time (1735hours in Israel), the sun was low in the west and there was less than 10 minutes of daylight remaining. Approaching out of the glare of the setting sun, the pairs of F-16s popped up to 5,000ft (1,600m—above ground level), acquired their target visually, rolled inverted, and pulled down to deliver their 2,000lb bombs onto the target. Each two-ship attacked in formation (although aiming individually) with 30 seconds between pairs so that they arrived at their release point as the explosion from the preceding pair subsided. In less than two minutes 12 bombs scored direct hits (two others hit but failed to detonate) and the Tammuz-1 reactor was completely destroyed. (See Notes 28 and 29)

Mission complete, the eight Netzs turned west and began climbing into the dusky twilight, turning on their IFF (Identification Friend or Foe) transponders to show themselves to their Baz guardians. Raz called out "Flash Zero". This was the code for "mission successful, no losses". As they climbed to 38-40,000ft, the F-16s were joined by their F-15 escorts (who covered them from 41,000ft and slightly behind) and flew across Jordan in the darkness. Waiting to ensure their safe return were two more four-ships of F-15s, an E-2C AWACS, the Boeing 707 jamming platform and at least one B-707 tanker.

Both surprised and intimidated, the Royal Jordanian Air Force recalled the pair of Mirage F-1EJs that had initially been launched to investigate the overflight, allowing all 16 IDF/AF aircraft recovered safely from the 1,350mile (2,200km) round-trip mission. Once clear of the last threat, the eight 133 Tayeset Bazs turned northwest to land at their home base, Tel Nof, while the Netzs returned to Etzion for debriefing and refueling before a short night flight back to their home base of Ramat David in northern Israel. The most contentious strike mission in Mid-East History was finished, meticulously planned and almost perfectly executed, and protected from interference by the IDF/AF's F-15s.

"Peace Fox: Part 2", to appear in SAFO #121, covers the introduction of the improved F-15C/D, the "Beka'a Valley Campaign", the long-range strike against PLO headquarters in Tunisia, and the status of the IDF/AF F-15 force today.

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End Notes

1. The Sabbath, the weekly Jewish holy day, begins at sunset on Fridays and lasts until sunset on Saturdays. The Talmud (Jewish holy book containing the religious laws) is very strict about observing the holiness of the Sabbath by undertaking no activities that may be construed as work.

2. Israeli losses were: Six Day War: 46 aircraft. War of Attrition: 35 aircraft. Yom Kippur War: 115 aircraft (including 35 F-4s, 55 A-4s, 12 Mirages and 8 Super Mysteres)

3. It is presumed that the initial batch of Foxbats supplied to Syria included several of the MiG-25RB Foxbat B reconnaissance variants since it was the unopposed overflights of Israel by the untouchable high speed, high altitude Foxbats that prompted the rushed and unprecedented acquisition of pre-production airframes as front-line fighters.

4. Most IDF/AF F-15s have nicknames. This practice was begun in 1981 by Moshe Melnik who recommended that the first two F-15As be named Sufa ("Storm") and Sa'ar ("Tempest") after the first two jet fighters—Gloster Meteor T.7s delivered in 1953—acquired by the IDF/AF. Keeping with the theme of violent weather phenomenon the next two were similarly named Barak ("Lightning") and Ra'am ("Thunder"). The IDF/AF F-15 nicknames are usually written in Hebrew script on the side of the radome. Single-seat F-15A/Cs are given a one-word nickname and the two-seat F-15B/Ds have two-word (in Hebrew) nicknames.

5. The delivery of the AFDT&E airframes (Operation Kartiv ["Ice Lolly" in Britain/"Popsicle" in American English] 1) was supposed to include all four aircraft. However, "F-16" developed mechanical difficulties over the Mediterranean resulting in having to land at Sigonella AB, Sicily, and thus was delivered later in the month. The fact that the flight had to turn around and temporarily head back to the west to ensure "F-16" landed safely (plus less favorable winds and air-to-air refueling difficulties), was what delayed the arrival of the three other F-15s. The estimated time of arrival (ETA) for the flight was 1500hours, Israeli time, and the acceptance ceremony was scheduled at that time in order to conclude it prior to the Sabbath (see Note 1). Flown by USAF

ferry pilots who were unfamiliar with the significance of delaying into the evening, the remaining three jets continued on to Tel Nof AB, and landed before sunset. However, the ceremony continued according to its script and extended into the beginning of the Sabbath. The next work day, the National Religious Party withdrew from Prime Minister Rabin's Labor Government coalition and it thus came to represent a minority, requiring another election. In the ensuing elections in early 1977, the National Likud Party ousted the Labor Party, which had been in power for 29 years.

6. Most sources report only four AFDT&E airframes, but these fail to include either airframe "F-12" or "F-18" depending on the source researched. This omission (and subsequent tail number discrepancies about the delivery of these jets) is even included in the otherwise authoritative Israeli F-15 Eagle Units in Combat book recently published by Osprey.

7. The 19 F-15As were Block 17/18 serials 76-1505 through -1523 and 2 Block 16 F-15Bs, 76-1524 and -1525. Visually these aircraft differ from USAF F-15A/Bs primarily by the lack of the ALQ-128 pod atop the left vertical stabilizer.

8. Under FMS program "Peace Marble", the IDF/AF purchased 75 F-16A/Bs, the first of which arrived in Israel in July 1980.

9. The pilots were: the first 133 Tayeset Commander LtCol. Eitan Ben-Eliyahu, LtCol. Benny Zinker (the second Sqdn CO), Major Moshe Melnik, Yoel Feldsho and Shaul Simon. The course took four months and they were followed by another five pilots.

10. The Rafael IR missiles are numbered in sequence even if the names change. The Shafrir (or Shafrir 1) was the first Israeli AAM and was generally a copy of the short-range AIM-9B but with a larger diameter (15cm) rocket motor, warhead and seeker section. The Shafrir 2 was an improved version, analogous to the USAF/USN AIM-9D. The Python 3 was a much more powerful medium-range IR missile with an all-aspect (could be employed from any angle against an adversary aircraft) capability. It has a wider field of view and better off-boresight targeting capability, more powerful rocket motor and large delta

canards making it generally superior to the US AIM-9L. The Python 4 added a helmet-mounted sight targeting capability.

11. At the time, the IDF/AF, unlike most air forces, reportedly assigned their reconnaissance aircraft to units using the primary version of the type. Thus IDF/AF RF-4E Phantoms were not assigned to a separate unit, but were interspersed among the F-4E squadrons at a nominal strength of two per unit.

12. These were ground-launch, remotely piloted versions of the USAF AQM-34L air-launched reconnaissance drones operated by IDF/AF's 200 Tayeset based at Palmachim AB.

13. Most sources report two formations of four each were launched; some say 12 MiG-21s were launched.

14. Eitan Ben-Eliyahu had just passed command of 133 Tayeset to Benny Zinker the month before and moved up to take over the Weapons Department of the IDF/AF staff, but still flew as an "Emergency Posting" (EP) pilot with his old squadron. The #2 Baz was flown by the Flying School Fighter Training Squadron Commander, Maj Moshe Melnik, and #4 was the 133 Squadron's senior deputy commander, Yoel Feldsho. It is noteworthy that Ben-Eliyahu later commanded the IDF/AF from 1996-2000.

15. The IDF/AF had been operating mixed-type formations for 10 years, with the Kfirs adding firepower while the F-4Es or F-15s provided "air picture" radar information to the very limited (range-only radar) Kfirs.

16. Called Dayas (for "Kite") in Hebrew, the IDF/AF E-2Cs normally operated off the coast, over the Mediterranean Sea, because their radars were cluttered with ground returns when operating over land.

17. Feldsho's wingman, Guy Golan also fired an AAM at the same target and initially Golan and Eshel "shared" the victory. However, IDF/AF later decided that Eshel should have full credit for the victory, the only one for the IAI Kfir fighter.

18. Ominously, the chosen name "Osiris" was the ancient Egyptian "god of the dead".

19. The "Tammuz" reactors were named after the month of the Islamic calendar during which the Ba'ath Party came to power in Iraq in 1968.

20. Etzion AB was practically deserted as well, its former residents (three A-4 Skyhawk

squadrons: 137, 145, and 202 Tayeset) having transferred to Uvda AB in preparation for returning Etzion to the Egyptians as was required by the Camp David Accords. This occurred in April 1982.

21. Also referred to as Operation "Babylon" in various popular histories, but this seems to be an melodramatic touch/afterthought by the Israeli public affairs/censorship office. Originally, during planning, training and other preparations the IDF/AF called the operation Hatakh Moshem ("Ammunition Hill") after a legendary battle that opened the way for the Israelis to take Jerusalem during the 1967 Six Day War. "Opera" was the codeword for launching the mission and is ascribed by more serious researchers as the actual operation name.

22. Additionally, the following Monday was the Jewish "Shavuot" holiday, so very little IDF/AF activity was expected during the Sunday between the Sabbath and Shavuot, creating a sort of "three day weekend" on the Jewish calendar.

23. The four 117 Tayeset F-16s were "Bunch" flight: serial numbers 107, 113, 118 and 129; the four 110 Tayeset F-16s were "Chisel" flight: serial numbers 239, 240, 243 and 249.

24. Unlike USAF F-15A/Bs, the IDF/AF ones had been modified to accept the McDonnell Douglas designed conformal fuel tanks (CFTs), adding 9,800lbs of fuel and allowing the carriage of the ECM pod on the centerline in lieu of the usual 600gal external fuel tank. Reportedly these CFTs were built in Israel and there were nine sets on hand at the time of the raid. Additionally, some sources state that the F-15s carried Rafael Shafrir 2s, but this appears to be deliberate misinformation by the Israelis, or assumptions on the writers' parts.

25. In spite of the nine months of practicing, only the two formation leaders and the overall mission planner knew the actual target, although most of those involved suspected the truth.

26. These gaps in radar coverage had been probed and found by IDF/AF F-4Es on several occasions in October 1980 and January and March 1981, during one of which (3 January 1981) an Israeli F-4E (#498 from 119 Tayeset) was intercepted by an Iraqi AF Mig-21MF Fishbed but outmaneuvered it to the point that the MiG ran out of fuel and crashed 27miles (40km) west of air base H-3. The Iraqi pilot successfully ejected. It is reported that the Iraqis were aware of the gap in

their coverage, but since it faced another Muslim state it was not a cause of concern. After the event, Saddam Hussein had the commander of the Iraq's Western Air Defense Zone, Colonel Fakhri Hussein Jaber, and all his officers above the rank of major executed for this oversight.

27. The primary open sources—McKinnon's 1987 *Bullseye One Reactor*, and Claire's recent (2004) *Raid on the Sun*—disagree on the planned takeoff time. McKinnon's book, which is more accurate in almost all technical and aviation details, but a highly "stylized" and "sermonizing" account muzzled by the Israeli censors, states it was 1500hours. Claire, which has the advantage of individual personal interviews with participating F-16 pilots but lacks any semblance of understanding F-16 aircraft or the details of piloting them, says it was 1600hours. The discrepancy may be because one author uses Israeli time and the other Baghdad time, but neither states the basis for their chronology. (Other accounts simply say that the F-16s "took off on time".) Both agree that the attack took place within 10 minutes of sunset at Baghdad. Working backwards from sunset time (approximately 1845 Baghdad time on June 7th each year), I believe Claire's timing is correct.

28. The two Mk.84s released by the sixth F-16 fell wide. This jet was flown by Col Ifach Spector, the Ramat David AB wing commander, who was not a fully trained F-16 pilot and had selfishly added himself to the mission for the glory of it. He apparently "grayed out" during the high-G pull to line up the target, momentarily lost his orientation and could not get back to the proper bomb release parameters (dive angle, speed and alignment on the target) before arriving at "pickle altitude" (bomb release altitude). The other 14 bombs hit within 30ft (10m) of the center of the target.

29. Despite the Israeli planning to avoid civilian casualties, especially among the French and Italian workers, one person, Damen Chaussepied, a 25-year old Frenchman, was killed in the raid. Analysis of the destruction was that it would take two years and between \$150M and \$200M to rebuild the Tammuz-1 reactor. Incidentally: perhaps even more destructive than the physical damage was the effect the raid had on the French and Italian technicians, most of which left Iraq almost immediately and refused to return to rebuild the facility at Tuwatha.

Captions for photos on page144

The photos accompanying this article are generously provided by Jurgen van Toor, a member of the Dutch Aviation Society "Scramble", a global organization of aviation enthusiasts who track individual aircraft and monitor the strength and status of air forces (and airlines) world-wide, regardless of size. More can be learned about their amazing work, and about your favorite Small Air Force, by accessing the Scramble website at www.scramble.nl. Jurgen obtained these photos during a visit to Tel Nof AB, Israel, during an "Open House" on 9 May 2000 and the author thanks him for his contribution.

1. IAF F-15A #663 (USAF serial 76-1510) was sixth aircraft of the Peace Fox II deliveries and has been assigned to 133 Tayeset since its arrival. At some point in its career it was badly damaged in an accident and had the entire forward fuselage (from the intakes forward) replaced. Nicknamed "Lahak", it is shown here on display with three

external fuel tanks, four AIM-7F Sparrow radar missiles and four Rafael Python 3 IR-guided missiles. Note the cartoon eagle's head on the inboard side of the vertical stabilizer, a ready recognition of 133 Tayeset.

2. IAF F-15C #519 (USAF serial 83-0055) was 11th aircraft of the Peace Fox III deliveries and has been assigned to 106 Tayeset throughout its career. It is nicknamed "Permanent" ("Eitan" in Hebrew) and is shown here with the normal air-to-air load of AIM-7s and Pythons, no external tanks, but carrying a centerline Multiple Ejector Rack (MER) lugging six 500lb Mk.82 low drag general purpose bombs (LDGP). The dramatic twin red (with thin black outline) vertical accents on the inner surfaces of the tails signify the 106 "Spearhead" Squadron.

3. IAF F-15I #201 (USAF serial 94-0286) was first of the Peace Fox V deliveries, arriving in Israel as "001", on 15 September 1999. The F-15I is the

Israeli-specific version of the USAF F-15E "Strike Eagle". This is easily recognizable by the two seats, conformal fuel tanks along the sides and "flush mounted" (12 total) Mk.82 LDGP bombs. It carries four AIM-9 heat-seeking missiles for self-defense. This aircraft is assigned to the IDF/AF's Center for Flight Testing ("Mer'kaz Nisu'yei Ti'sa" in Hebrew) which is also known as 601 Tayeset. This is the only F-15I assigned to that unit.

4. IAF F-15A #663 (USAF serial 76-1508) was fourth aircraft of the Peace Fox II deliveries and has been assigned to 133 Tayeset since its arrival. Its nickname is "The Lighter" (as in setting others aflame; "Ha Madlik" in Hebrew) and it carries one Syrian MiG kill marking. This aircraft scored the very first F-15 victory in history when Maj Moshe Melnik shot down a Syrian MiG-21 over Lebanon on 27 June 1979 (as described in text).

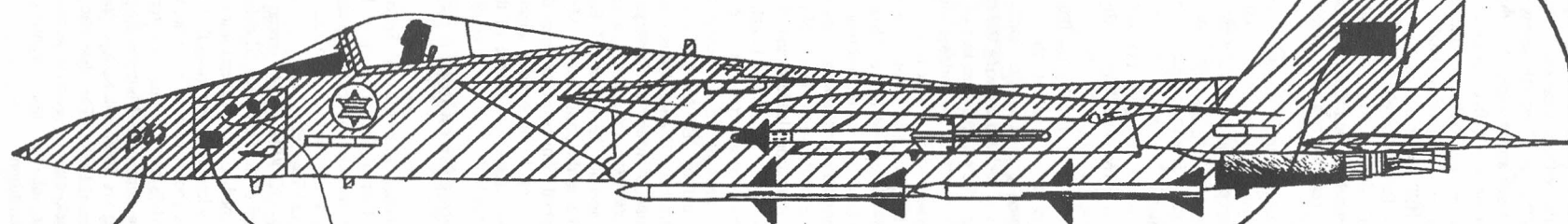
IDF/AF McDonnell Douglas F-15A *Baz* ("Falcon")

In 1975 the IDF/AF purchased 25 McDonnell Douglas F-15s, all but two of them were the single-seat A-model. They were named *Baz* in Israel (Hebrew for "Falcon") and were assigned to the 133rd *Tayeset* "Double Tail Squadron" stationed at Tel Nof Air Base in southern Israel.

Basic Camouflage: USAF Compass Ghost Gray Pattern, Light Ghost Gray (FS36375) Overall with Dark Ghost Gray (FS36320) upper surfaces.

National Insignia: Royal Blue six-point "Star of David" in white circle. Placement is one each on the forward fuselage between the base of canopy bow and forward night formation light strip, and two each on the wing upper and lower surfaces. The upper left/lower right wing emblems are positioned in place of the USAF insignia with the others mirroring that placement.

133 *Tayeset* Emblem:
A black eagle stenciled on a red ace of spades



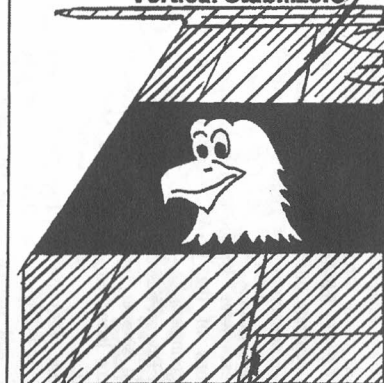
Nicknames: In 1981 squadron commander Moshe Melnik ordered that all 133 *Tayeset* aircraft should be "nicknamed" with F-15As being given single word names—in Hebrew script—and F-15Bs having two-word names. Nicknames were painted on the left side of the nose only, in dark or royal blue, usually on the side of the radome (forward of the radar bulkhead line).

Kill Markings: Aerial victories scored with each F-15 are represented (left side only) by red-white-black Syrian roundels placed in a line just below the hinge of radar equipment bay Door 1L. For jets with multiple "kills" this line of victory markings is rarely straight, even, or level.

Nose Numbers: In mid-1982 IDF/AF F-15s began to carry their "tail numbers" on both sides of the nose in dark/royal blue. These were positioned on Doors 1L/R, usually across the small rectangular panel centered in the forward half of the door (on USAF jets it is an antenna).

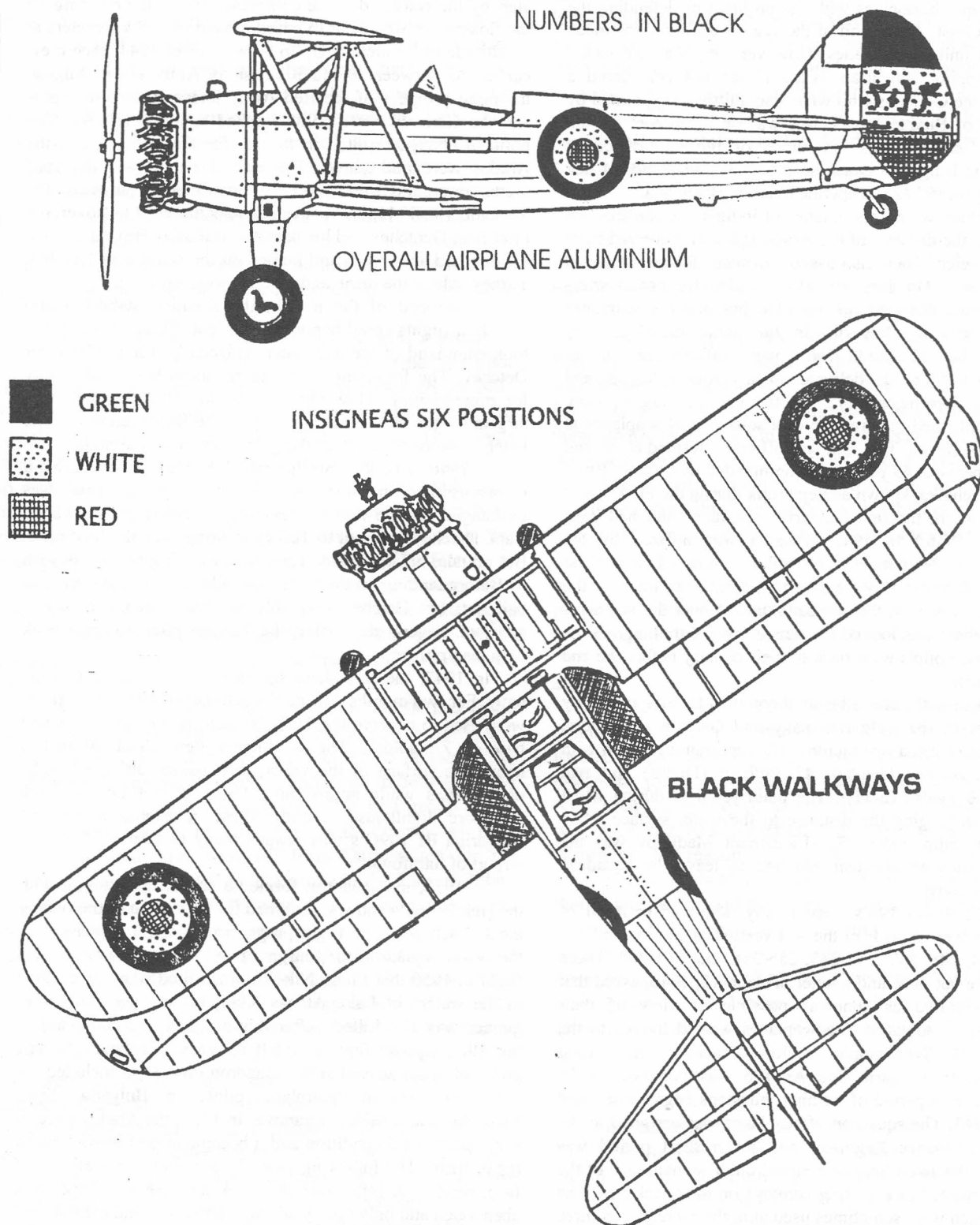
Tail Numbers: Early IDF/AF F-15As have three digit numbers in the 6XX series. These are carried in black stencil just forward of the rudder hinge line, normally aligned between the bottom and center hinges, but sometimes between the bottom hinge and the base of the rudder.

Inside Surfaces of Vertical Stabilizers



Stearman PT-17

INPERIAL IRANIAN AIR FORCE



The Arado 196 in Foreign Colors

[Editor's note: This article first appeared in the September/ October 2005 issue of the French magazine AVONS. This English translation (by the Editor's sister, Sandra Schachter) is presented here by permission of AVION's editor, and long-time SAFCH member, Michel Ledet.]

Bulgaria

When the Bulgarian Prime Minister, Bogdan Filov, signed the Tripartite Pact on March 1, 1941, the officers of Bulgarian aviation found themselves with the problem of defending the Black Sea Coast. At the end of the year, a decision was made to create a unit of seaplanes. However, this was not easily done. Equipping Bulgarian aviation was not considered a priority by the Germans who were also a little disappointed by the refusal of Bulgaria to declare war on the Soviet Union. However, Germany was, conscious of the importance of guarding the Bulgarian coast; so it sent the seaplanes of *See Aufklärungsstaffel 125* to operate over the Black Sea.

Since there were no seaplanes of indigenous construction in Bulgaria, the delivery of the Arado 196 was requested from the Third Reich. They also asked Germany for assistance in training crews. On July 29, 1942, Luftwaffe headquarters responded that this was not possible but that the seaplanes could be sold to Bulgaria. In the same message, they confirmed that 12 Arado 196's were offered for sale to Bulgaria, with four to be delivered in July, four in August, and the rest in September 1942. At the end of August, Gen. Airanov confirmed the creation of a squadron of seaplanes at the base of Tchajka. This unit was officially formed at the end of September with 43 personnel commanded by Captain Russi Kolarov. (Tchajka, known as Pejnerdjik during the First World War, was where the first Bulgarian seaplanes unit had been created in 1916.) In 1942, Tchajka was utilized by the Germans. In September, the pilots Boris Tsanev and Alexander Toromanov were sent to Germany to train on the Arado 196. However, the combat situation over the northern-European coast was judged too dangerous for training; so the two Bulgarian pilots went back to their country before the end of their course.

In Bulgaria, the crews began theoretical training taught by the officers of the Bulgarian navy and German instructors. These courses lasted two months. The real training began with the arrival of two Heinkel. 42 *Patistas* (Ducks) and two Heinkel. 60 *Tyulen* (Seals). The main problem during flight training was judging the distance to the water surface when landing on calm water.. Sub-Lieutenant Madjarov was the victim of such an accident and had to leave the squadron shortly afterwards.

The 12 Arado 196's were finally delivered in April of 1943. They were models of the A-3 version, with the numbers: 0219, 0244, 245, 247, 252-253, 255-258, and 261-262. These planes were not new, and a letter of Sept. 12, 1942, asked that they be repaired as soon as possible in view of their exportation to Bulgaria! The seaplanes were delivered to the air park at Swinemunde. before reaching their final destination. In Bulgaria, the Ar 196 was baptized *Akula*. (Shark). After a period of training, missions began at the end of June 1943. The squadron of seaplanes was assigned to the 1st Reconnaissance Regiment and for a short period was designated the 161st Seaplane Squadron. The main task of the Arados consisted of escorting convoys on the Black Sea. The planes, which were sometimes used at night, were put on three

degrees of alert: departure in several minutes, one-hour alert, and indefinite.

On December 19, 1943, the whole squadron was put on alert by the coastal defense command, and in the morning all the floatplanes were sent to patrol a band of 250 kilometers at an altitude of 20 meters. Up to September of 1944, each crew carried out between 30 and 50 missions. At the end of August, the rapid progress of the Red Army interrupted these flights and the Germans were politely asked to leave Tchajka. The political change resulted in trouble for the military, and the Arados were not spared. The unit dispersed and the staff scattered around the country to avoid being arrested. On September 8, 1944, on the eve of the communist takeover, the pilot Ivan Dentchev and his observer Radoslav Boyadjiev took off onboard an Ar 196 and landed on the water near Istanbul, Turkey, where the plane and its crew were interned.

At the end of the month, the situation stabilized and squadron flights could begin again. Lieut. Tsanev temporarily took command of the unit, later replaced by Capt. Alexander Detchev. The following year, the squadron was used mostly for mine-hunting. However, the Arados also served to tow targets for the anti-aircraft artillery of the Bulgarian navy. The latter missions were rather dangerous, especially at night.

In 1946, a Turkish Spitfire which had gotten lost during a reconnaissance mission, landed in Bulgaria. This was exchanged for the Arado previously interned by the Turks. Capt. Detchev was sent to Turkey to bring back the floatplane. But on take-off, the Arado carried its mooring post away with it! Before landing on the water, the pilot received the order to bail out; but Detchev was able to land with the post still attached. Several days later, the Turkish pilot was sent back with his Spitfire.

In 1947, the floatplane squadron was transferred to the navy. For two months, during the summer of 1948, the Arados were used to observe the Turkish coast, particularly the naval base of Zunguldak. The floatplanes flew about 20 meters above the surface of the water, then gained altitude to take photographs while approaching the port; not far from the Bosphore lighthouse. During these missions, a pair of Bulgarian Bf 109G's was always ready to take off from the airport of Sarafovo.

In 1950, the squadron formed a small separate unit with the Heinkel 60's and was assigned the protection of the fishing areas. Each year, the flight program included a movement of the whole squadron to Bourgas. It was in the course of this flight in 1950 that Lieut. Nikolov was killed when he crashed in the waters of Lake Atanas Kkoi; his mechanic/machine-gunner was also killed. After this accident, the command of the 8th Seaplane Squadron fell to Vassil Zhekov. The last group of pilots arrived at the squadron in 1951; it included the only two women floatplane pilots in Bulgaria, Sijka Tsontcheva and Milka Goranova. In 1955, the Arados were in very bad general condition and it became almost impossible to repair them. The following year, the survivors were all retired from service. A little later, the naval air base at Tchajka was abandoned and only one Arado was preserved and exhibited at the naval museum at Varna. All the other planes were

destroyed. During the 1980's, this Arado was taken apart and restored to take its place in the military aviation museum at Krumovo (near Plovdiv) where one can still see it today (2006).

Soviet Union

As well as a well-known adversary of the Soviet floatplanes in the Baltic and Black Seas, captured Ar 196's were to serve with the Soviet Union. The first planes captured were ones abandoned by the Germans on the Polish coast. Others were captured in Germany in the spring of 1945. About 20 planes of this type were found on the base at Dassow, and a team of specialists was sent to examine them. A warehouse full of spare parts, engines, and instruments was also found there. However, neither the Soviet army nor navy was really interested in using the Arado, which they considered old-fashioned. Only one service -- the Frontier Guards -- showed any interest. This service used planes to patrol the coast, up to the territorial limit, and for liaisons and light transport duties. During the war, not only had its equipment not been renewed, but many of its planes had been "borrowed" to make up for the losses on the front line. Perhaps the Arado was old-fashioned, but this service considered it a better plane than the old MBR-2 and Ch-2 that it was still using!

The command of the Frontier Guard then sent a group of experts to Germany, led by Col G.L. Chvarts (a former test pilot for the Scientific Institute of Civil Aviation Research, or NII-GVF). The captured floatplanes were reassembled at the industrial maintenance repair shop at Damgarsten. They were repaired and rebuilt by engineers and German workers. The first group included 5-8 Arados, and the first flight was made by a German pilot, assisted by Col Chvats. The commander N.G. Ozerov, arriving from Moscow, flew two flights with the German pilot, then he tried out all the planes. The factory at Damgarsten completely reconditioned 18 Arados. Teams were sent to places where slightly damaged Arados had been captured. These planes were repaired on the spot or in specialized repair shops. In this way, the Frontier Guard received 37 floatplanes of this type.

Now the problem of their delivery to the USSR had to be solved. These planes were to serve units based on the Baltic and Black Seas and in the Pacific. It was decided to deliver those destined for the European area by air, and those to be used in the Pacific were to be delivered by railroad. The first group of ten ferry pilots was trained in Germany, with Ozerov as their instructor. The floatplanes took off from Damgarsten for the Baltic Sea, where they landed on the water in the Bay of Pillau. They then went to Lake Kish near Riga, where they were divided into two groups. Some were sent to Pyama, in order to operate on the Baltic Sea, while the others went to Odessa on the Black Sea. One of the Arados even went to Moscow. After landing on the Khimki reservoir, it was examined by P.N. Apollonov, the vice-minister of security, and N.P. Stakhanov, the director of the Frontier Guard. The Arados destined for the Pacific were transported by train, with 62 motors and 30 replacement floats; 86 rail cars were needed.

The Arados received Soviet instruments and equipment. The crews soon learned to master this new plane that were robust and relatively simple to operate. The only problem limiting their use was related to the engine, a model which was no longer made. It was proposed to replace it with the Soviet 9-cylinder ASH-621R engine. This engine, a copy of the Wright Cyclone R-1820

whose license had been acquired in 1935, was still being produced by factory #19 at Perm. The OKB-30 of engineer A.P. Golubkov received an order to modify the Arado 196.

The ASH-821R was similar in weight and dimensions to the German BMW 132K. In 1949, factory #30 modified one of the floatplanes. The engine cowling underwent a bit of surgery to deal with the Russian winter weather. Installed on the front face was a panel equipped with shutters with controllable openings. Tests were successful, but the modification was not adopted. At that time, a number of rebuilt BMW 13K engines coming from Ju 52s became available for the Arados. It's thus that the Arados, initially meant to "plug the holes" and to stay in service only a short time, was to stay operational with the Frontier Guard units for some time, especially in the Pacific. In the Pacific, these planes were deployed at the base on the Bay of Ouglovaia, not far from Vladivostok. The last Arados were not retired from service until 1955!

Romania

Many English-language publications have referred to the Ar 196 in Romanian service. In fact, the decals for the 1/72-scale Encore model of the Ar 196 included Romanian insignia. However, no photograph of an Arado in Romanian colors has been discovered up to now. And for a reason! It is known that Romania ordered 50 planes of this type from Germany, along with several Heinkel 114's. The first of these Arados arrived in Romania at the beginning of the summer of 1944. It seems that these floatplanes stayed in their cases because of the approach of the Soviet forces. The changing of sides by Romania on August 23, 1944, did not permit the 24 Arados to be put into service. The base at Siutghiol was occupied by the Soviets the following September 8, and they confiscated 22 of the floatplanes. It seems that the Romanians had been able to assemble the last two but were not able to put them into service. These Arados were presumably added to the planes captured in Germany and it is very probable that they were put into service on the Black Sea.

Japan

At least one German Arado was stationed at Penang (Malaya), where a submarine base of the Kriegsmarine was located as part of a Japanese base. Several Japanese personnel, floatplane pilots, were able to see the Arado, which impressed them with the quality of its construction. According to the same witnesses, the Arado carried Japanese colors, that was hardly surprising, for reasons of security. However, we do not know anything more about this plane. Other witnesses, the Germans themselves, described the plane as entirely blue with no national markings. It is known that, at times, one of the Arados even carried French markings in order to fool the enemy. After the German surrender in 1945, the submarines found in the Pacific were given to the Japanese, as well as at least one Ar 196. However, we do not know if the Japanese ever made use of this floatplane.

Finland

Finland used three Ar 196's on loan from the Luftwaffe. The first, Ar 196A-2 WNr 0115, coded GA+DO, was used for two months by the Finns to support commandos behind Soviet lines in the autumn of 1943. It flew 18 missions as part of the Detachment Malinen between September 13 and October 29, 1943. On June 30, 1944, Detachment Jauri received the first of

two Ar 196A-3's from KG200 and coded A3+AC. On August 6, 1944, the second one arrived; it was coded A3+BC Detachment Jauri flew 45 missions against the Soviets until September 4, 1944. A3+BC crashed the next day at Rovaniemi, while A3+AC was given to the Soviets as it still belonged to the Germans.

Norway, Sweden, and the Royal Air Force.

Several other countries made occasional use of the Ar 196. On April 8, 1940, before the invasion of Norway began, the German heavy cruiser *Admiral Hipper* catapulted one of its Ar 196's to look for the possible presence of British ships in the vicinity of Trondheim. This was without any doubt an Ar 196A-2 (and not an A-1 or A-5 as has often been written). The floatplane had a fuel problem during its mission and landed at Lyngstad, at the port of Kristiansund, just to the south of Trondheim. It was immediately seized by the Norwegian navy. They sent a pilot by floatplane MF-11, 1st Lieut. Kaare Kjos., who was charged with bringing this unexpected booty back to Aunøy. The German markings were completely removed on April 12 (the war had started) and replaced by the Norwegian insignia on the tail.

This sole Ar 196 was then attached to the 'FA-2 (*Flyavdeling*), a group of floatplanes based at Aunøy along with Høver MF-11 1342' and two ex-British Walrus (P5649 and L2332). These planes received the order to evacuate to Great Britain on April 19, since the RAF wished to examine the German floatplane. Quickly taken into charge by the Marine Aircraft Experimental Establishment (MAEE), the Arado was unfortunately destroyed on April 26, capsizing on take-off from the Gare Loch, near Helensburgh. The pilot, C.W. Btas, of the Royal Navy, was injured. We saw in Avions #145 that after the war the MAEE obtained two Ar 196A-5's, registered AM91 (WNR 137 and AM92 then VM748 WNR 514). They were scrapped on November 14, 1947.

During the war, a number of German planes found refuge in Sweden, either voluntarily or not. Among them there were two Arado 196. The first was an A-3 WNR 1006 'DH+ZF' of 4./Fl., Erg.Gr. (See) Kamp. The plane had been detached to Copenhagen., where some BV 138 of the unit were located. Piloted by Uffz. Ludwig Hammer, with Lt. Helmut Abromowski as observer, the plane took off from Copenhagen on February 11, 1943, for a short training flight toward Bornholm (Denmark). Because of a navigational error, it found itself over Swedish territorial waters. A Swedish warship fired on the floatplane, which being slightly damaged, chose to land around 1600 hours. Although the crew was returned to Germany three days later, the Arado was given to the Flottille F2 at Hägermås before being sold to AB Kontinentagentur. It was then registered as 'SE-AOU'.

At that time, there existed in Sweden an office of the American SIS (Special Intelligence Service) directed by John Turner. Its primary activity consisted of transporting agents to Finland and Norway. For that purpose it used a Waco formerly Norwegian 'SE-ANG' (ex- LN-EAO). But this plane was totally

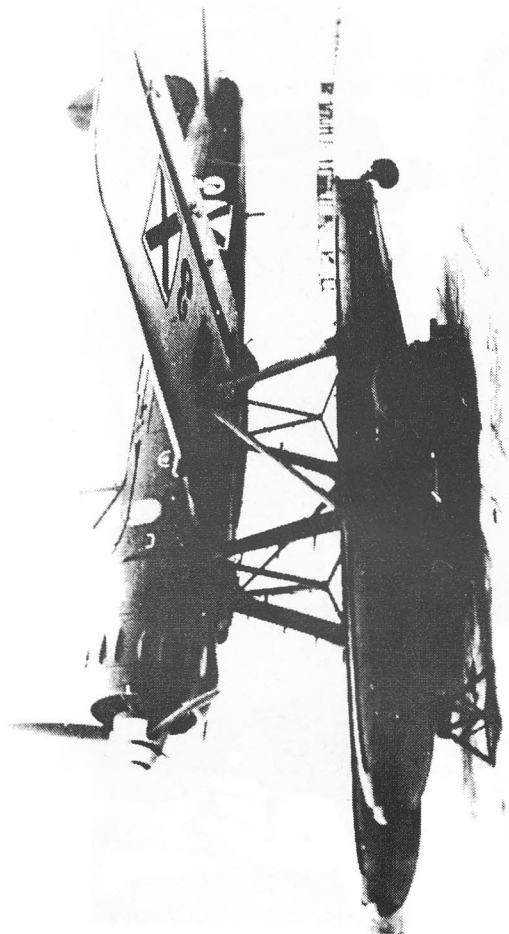
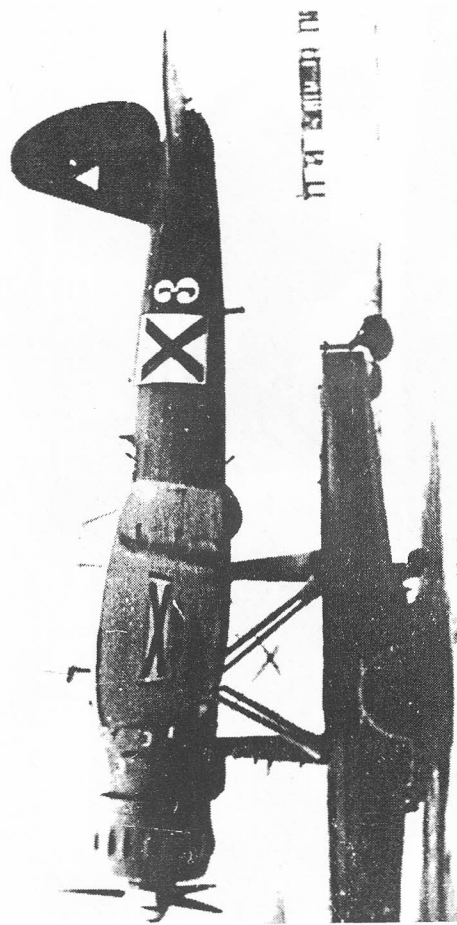
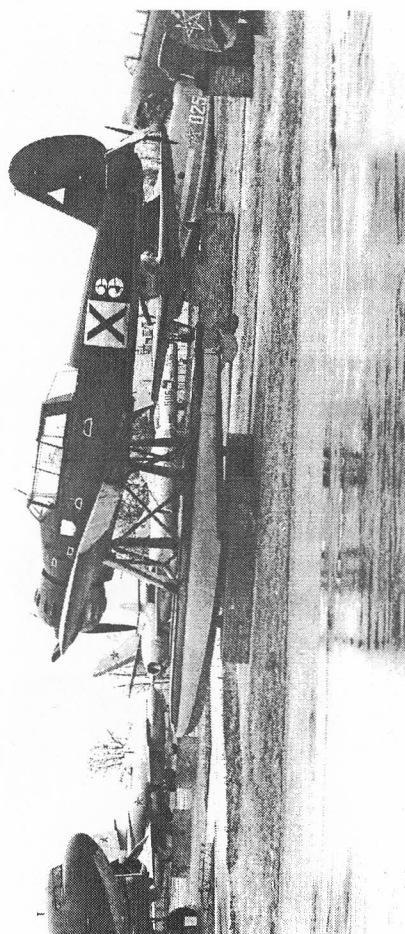
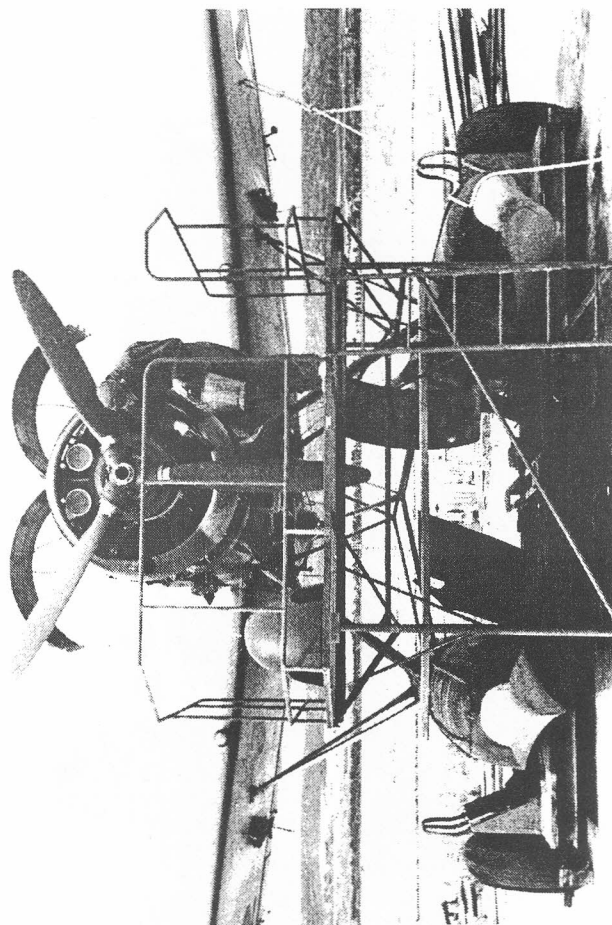
destroyed in an accident on January 1, 1945. Turner then set his sights on the Arado, and it was certainly he who financed its purchase of the Arado through AB Kontinentagentur. But the war ended soon and the floatplane was no longer needed. On May 9, Turner left Sweden for Oslo. Several days later, he learned that all the German planes interned in Sweden had to be sent to the USSR! Turner then asked his Norwegian contact from the SIS at Stockholm to meet him in Norway with the Arado.

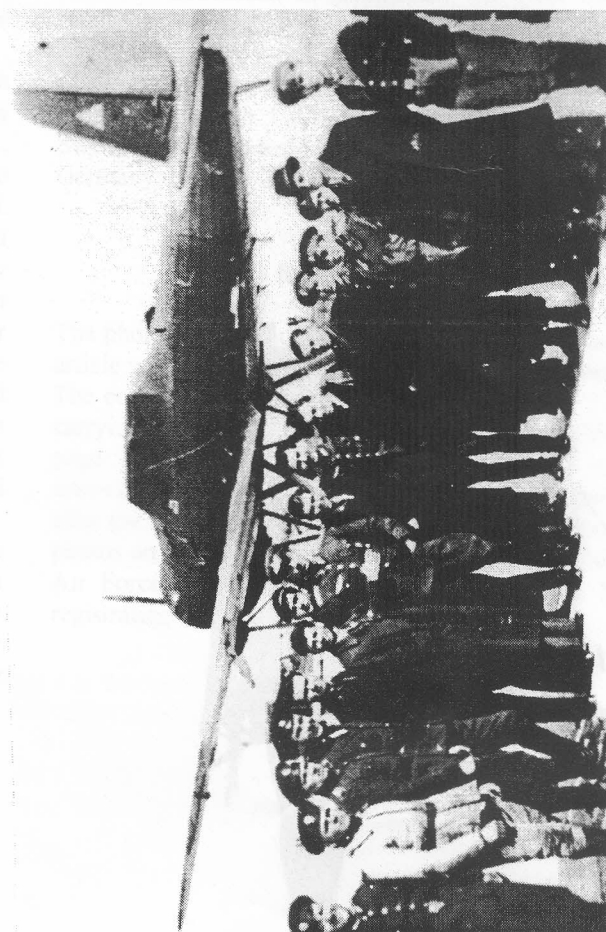
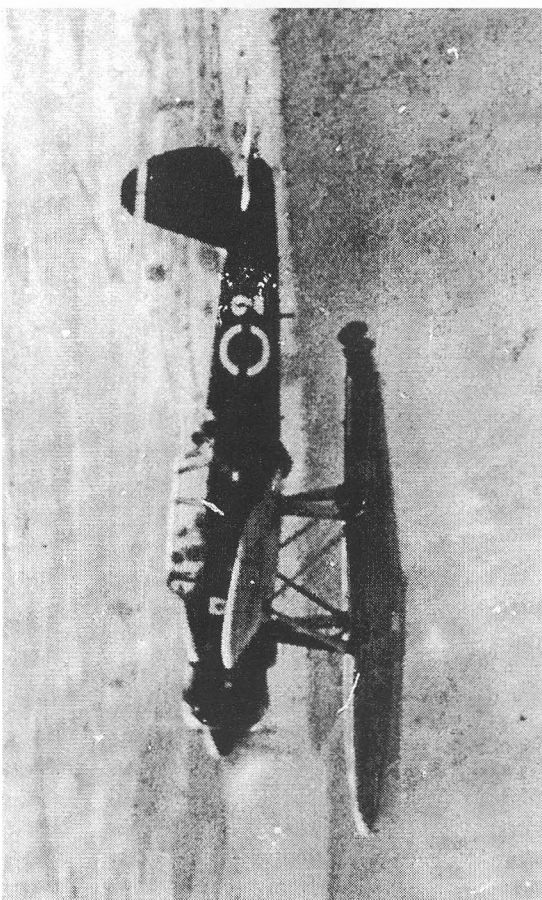
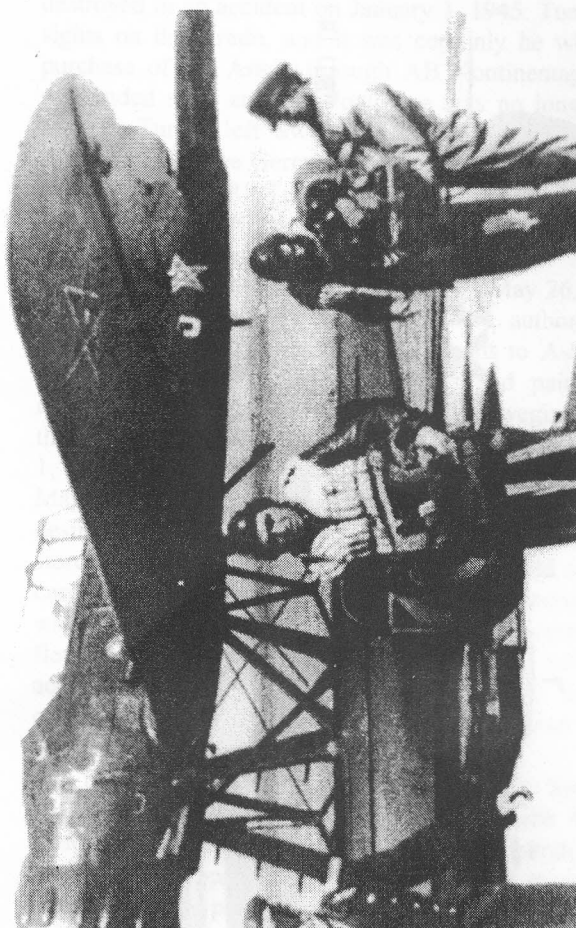
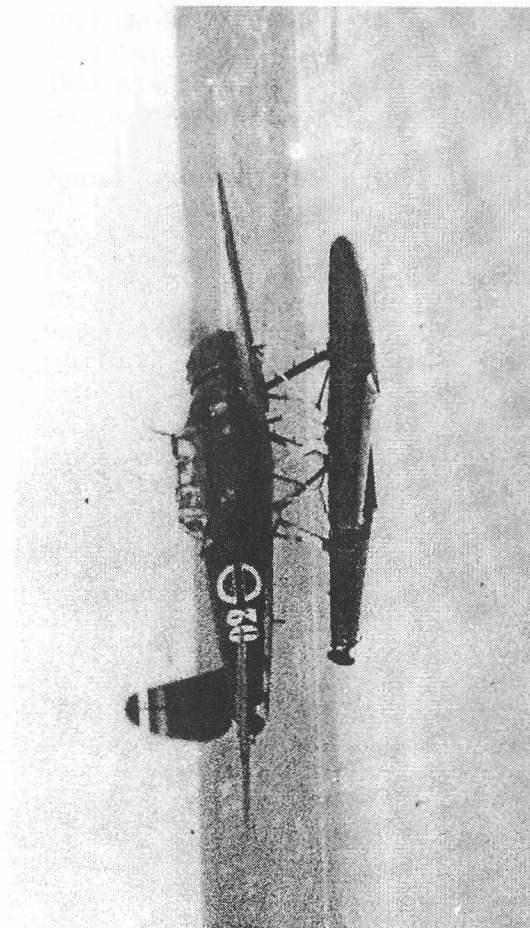
Halvor Bjørnebye complied and, on May 26, 1945, he flew the Arado out of Sweden without the authorization of the Swedish authorities. The plane was sent to A-Squadron 8801 ADW (Aircraft Disarmament Wing) and painted in British colors. It was then attached to 333 (Norwegian) Squadron on their return to Norway and was based at Fornebu. On December 1, 1945, the plane received Norwegian roundels and flew until May 28, 1946. Taken back by the British, the plane avoided destruction thanks to Turner, who located it when it was being stored at Sola in June 1946. It was then sold to the Swedish company AB Ahrenbergsflyg of Stockholm, and went to Sweden where it was registered as 'SE-AWY' on December 30, 1946. It flew target-towing flights for the Swedish military until an accident on April 19, 1947, at Karlskrona; the Arado was officially stricken from the Swedish civil register on September 10, 1949.

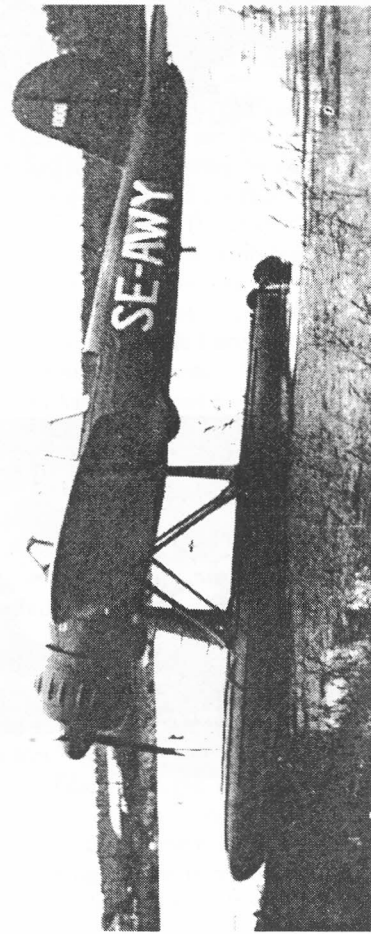
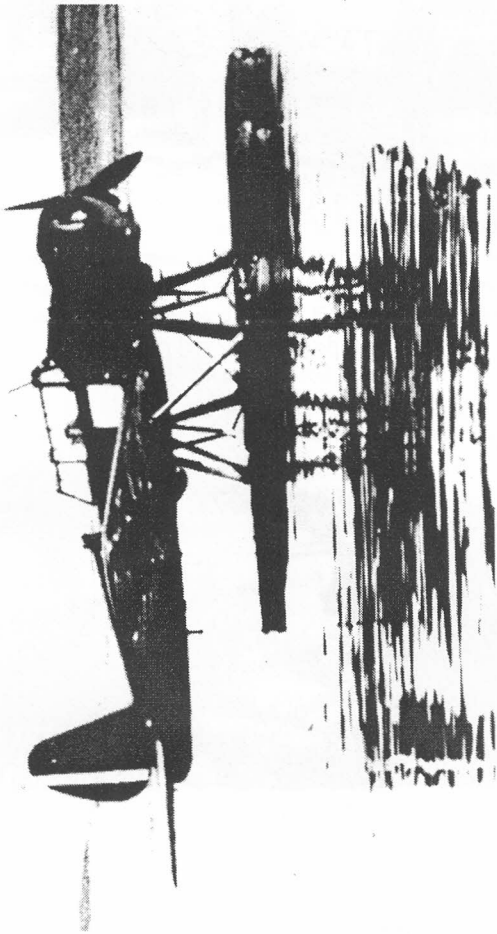
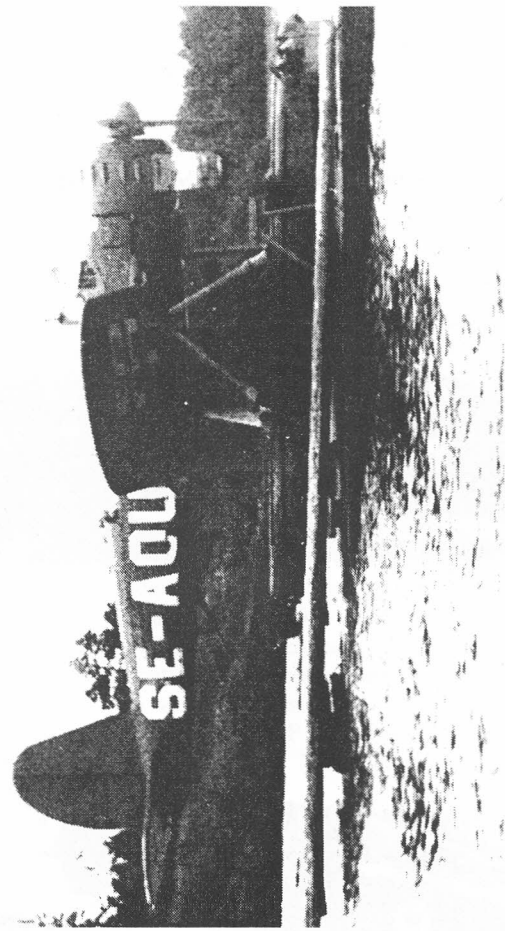
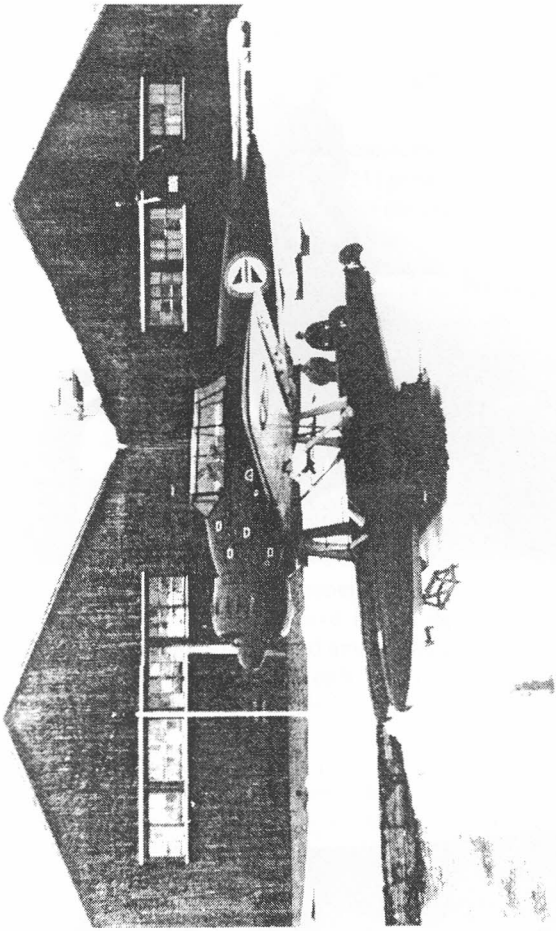
The second Arado that was interned in Sweden, an A-5 model, was WNR 359 'DF+QS.. From March 4-8, 1944, the floatplane, which belonged to E.K. Warnemünde, was used to test floats equipped with runners to permit its use on ice. On March 8, 1944, piloted by Commander Hans Fischer (with Lt. Friedrich Echtenach as technician), the pilot lost his way on returning from a test flight. He landed on the water, asked for directions from a Swedish fishing boat, and floated until he was escorted into the port of Helsingborg by the Swedish Coast Guard. On March 11, the plane was taken to Karlskrona by a Swedish crew and tested. It was finally sent back from Malmö to Germany on April 28, 1944.

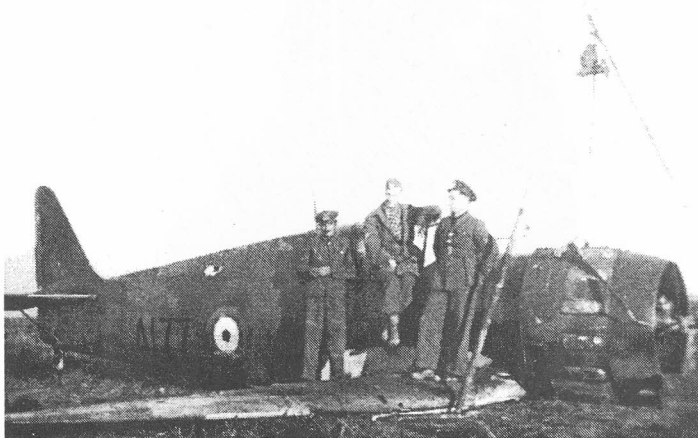
Captions for photos on pages 110 and 125-127

The photos of non-Luftwaffe Arado Ar 196 that accompany this article were received from Michel Ledet of Éditions Lela Presse. The cover photo and those on pages 110 and 125 are of aircraft carrying the national markings used during WWII. Those on page 126 are of aircraft carrying the national markings used immediately after WWII (top left & top right) and those carried after the Communist takeover (bottom left & bottom right). The photos on page 127 are of Ar 196 in service with the Norwegian Air Force (top left & top right) and carrying Swedish civil registration (bottom left & bottom right).





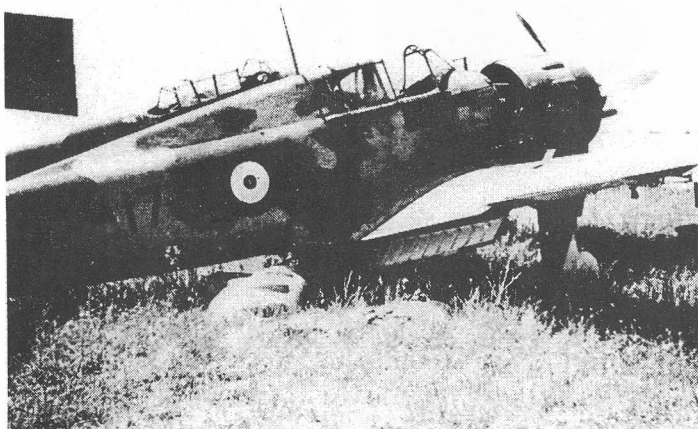




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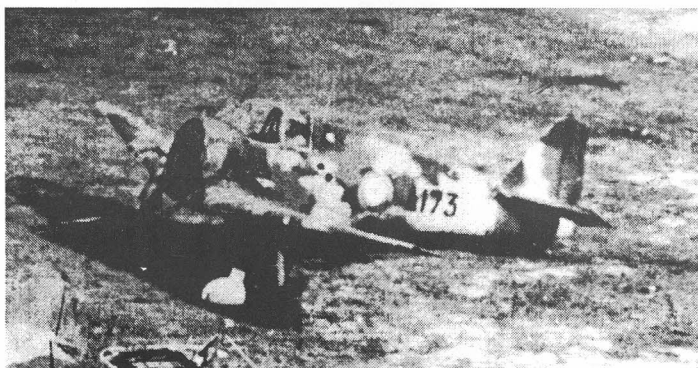
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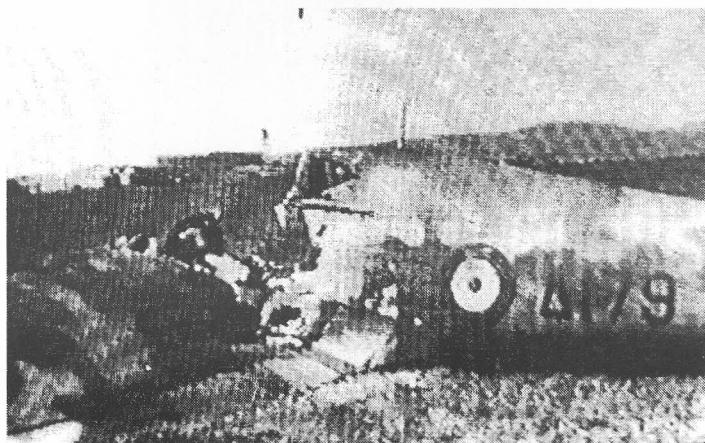
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5



6

The Blochs of the Hellenic Royal Air Force

[Editor's note: This is a translation of the chapter on the Greek MB.151 in Lela Presse's *Le Bloch MB 152*. The translation is by Sid Napier (SAFCH #1521) in Switzerland. It is presented here with the permission of Michel Ledet of Editions Lela Presse.] This is only one small chapter of the book that is reviewed elsewhere in this issue of SAFO.]

Not enough to equip a squadron

Nine Bloch 151 fighters of the 24 ordered by Greece (the equipment for two squadrons) were transferred to the EVA, the Hellenic Royal Air Force. Delivered between April 5 and 15, 1940, they were given the codes Delta 171 through Delta 179. Only the following production batch serials have been identified: Nos. 85, 94, 114, 346, 356, 396 and 430, without it having been possible to correlate these with the Greek codes quoted. The official "inventory of Bloch 151s in storage on 10 May 1940" lists a Bloch 151, No.55, in storage at the EAA 304 with the note "verification prior to delivery to Greece", followed by the comment "not delivered". However, there is good reason to believe it was delivered because there is no trace of it to be found among the units in Metropolitan France, hence there remains only one aircraft delivered to Greece that remains to be identified.

24 Fighter Squadron

Following delivery, the Bloch 151s were used to form a flight, i.e. *sminos* (1), based at Dekelia (2). On the eve of war this flight was stationed at Elefsis-Thriasson (3) airfield and had been renamed the 24 Fighter Squadron or 24 *Mira Dioxeos* (4). The squadron was subordinated to the DAP I, the organization charged with the defence of Attika and Athens (5).

Badly worn engines

The Bloch 151s did not perform as expected due to continual problems with their Gnome-Rhône 14 N-35 engines. Not one of the engines was new when the aircraft were delivered, and frequent overhauls were necessary. In particular, it was found that oil leakage around the drive shaft bearings caused a drop in compression and sometimes even engine stoppage. After running for a few hours, all the engines had to be overhauled by the KEA (National Aircraft Factory), where they underwent makeshift repairs, no spare parts for engines having been supplied. Instead of the rated 900 hp, power output was barely 700 hp and speed was far inferior to that anticipated. Moreover, in the extreme climate of Greece, the engines overheated in summer and started badly in winter. The 7.5 mm MAC machine guns jammed frequently, and no oxygen supply was provided for high altitude flight.

1. *Sminos* is the equivalent of a French *escadrille* and an RAF flight.
2. This was the base at Dekelia, often still called Tatoi today, although an official circular of 30 January 1936 decreed that from that date, the airfield at Tatoi was to be called Dekelia air base. Doubtless to avoid confusion with the royal residence at nearby Tatoi, the name Menidi was promoted.
3. Elefsis, better known to Greek scholars as Eleusis, is called Elefsina by present-day Greeks.
4. A *mira* is the equivalent of a French *groupe* and an RAF squadron. The code for 24 Mira was "Unit 2040"
5. 24 Mira also had two Avia B.534s.

28 October 1940, the Italians attack

On the day Italy invaded Greece, 28 October 1940, the unit was based at Elefsis/Thriasson. Three MB 151s were on detachment at the neighbouring airfield at Dekelia, which was raided at 0800 hrs by Italian bombers they were unable to drive off. On the same day, Capt. Savellos was appointed CO of 24 Squadron.

Two victories

Two missions were flown from the two bases.

On 28 October 1940, Lt G. Doukas led off a patrol of Blochs and from Elefsis pursued and badly damaged a squadron of Italian bombers. One of them, a Fiat BR 20 on which Lt G. Doukas had expended all his ammunition, came down near Nafpatkos. The engagement was reported by the Italian pilot who was shot down.

Alerted by DAP I, Lt P. Ikonopoulos took off from Dekelia and shot down an Italian bomber over Sounion peninsular south of Athens.

24 Squadron remained at Elefsis-Thriasson until 2 November. The day after the entire unit moved to Dekelia airfield north of Athens, where they ensured the defence of Athens by flying two to three missions a day. They cooperated with British Blenheim Is in order to intercept enemy bombers and force them to turn back.

Providing cover without aircraft

On 13 November 1940 five Blochs (all those that were operational) were sent to Larissa and put at the disposal of DAP II, the organization charged with the defence of Larissa; three arrived, but only one was in a condition to take off again ...The two remaining (at Elefsis-Thriasson) had been moved forward to the auxiliary airfield at Ambelon (6) where they would fly missions from 16 November to 7 December 1940. DAP II, who were not familiar with the squadron's problems, ordered it to provide cover for the Larissa-Kazaklar/Ambelon airfield despite Lt Doukas' protests. This was only possible after the three Blochs had undergone hasty repairs.

6. Still called Kazaklar. At the time of the war of 1940-1941, the EVA had three airfields at Larissa: Larissa proper, Ambelon (sometimes called Kazaklar) and Namata (often falsely called Niamata).

At Thessaloniki-Sedes

On 7 December 1940 all the machines available, some five to seven aircraft, were moved to Thessaloniki-Sedes at the disposal of DAP III to provide cover for Western Macedonia. The machines had undergone a general overhaul at the nearby Filiria aircraft factory.

At the end of December, a flight of Italian bombers were forced to jettison their bombs out in the Gulf of Thermaique and retreat. During the engagement Lt. P. Kontroubas' Delta 175 took hits in the wing and fin from enemy fire. In very bad weather, the Bloch 151s forced three Breda 65s (sic) to jettison

their bombs and flee, one of them being badly damaged by Lt. Ikonomopoulos.

On 16 January 1941, Major Anagnostopoulos took over from Capt. Savellos, who was ill, as CO of the squadron. Until 7 April 1941, one or two defensive patrols per day were flown whenever the weather permitted.

Two CANT Z.1007s shot down!

On 25 January 1941, the port of Thessaloniki was subjected to successive raids by a dozen Italian bombers operating in three flights of three to four machines each. Despite the barrage put up by Greek AA batteries, the Bloch squadron penetrated the fire zone and successfully attacked the bombers. In spite of the "modest" 7.5mm calibre of his machine guns, Capt Savellos succeeded in shooting down with some well-aimed bursts a CANT Z.1007bis which came down some kilometres from Thessaloniki. During the engagement he was puzzled by the flight pattern of his wingman, S/C (?) E. Smyrniotopoulos, who zigzagged from right to left, which prevented him from firing without hitting him (Capt. Savellos). Questioned after landing, the latter (Smyrniotopoulos) stated that his guns had jammed (and) he had been trying to distract the enemy in order to help his superior, all the while hoping that his guns would work again. He described his superior's victory as "spectacular". His (Savellos') victory was also claimed by the AA gunners.

Lt Ikonomopoulos, preparing to land, "fell" by accident on another CANT which he damaged so badly that it had to land near the Yugoslav frontier according to information from DAP III

Warning without radio

Two Blochs detached to the forward airfield at Kavala-Amygdaleon to the east of Thessaloniki on 20 January 1941 had provided cover for 20 days. They achieved nothing because they were unable to transmit warnings by radio when they encountered the enemy as the means of communicating with the ground were inadequate. The two fighters returned to Sedes on 7 December (sic).

Germany declares war on Greece

At 0500 hrs on 6 April 1941 Germany, which had just declared war on Greece, invaded the region of Thessaloniki from Bulgaria

Next day, 7 April, a Luftwaffe Dornier 17 on high altitude reconnaissance made several passes over Thessaloniki. This enabled a patrol of three Bloch 151s, vectored by DAP III, to take off and engage it. Lt. Ikonopoulos was the first to make contact. Here is his account:

"On the second day of the German attack I was ordered to intercept a German aircraft on photo reconnaissance at high altitude over the Thessaloniki sector. I saw it, it was a twin-engine aircraft, and I closed on him. I attacked from above and behind, after which I attacked again from below and behind as we had been taught to do at the time. He didn't go down, but he began to take evasive action, then he dived to ground level to the east of the city. I again closed from behind, but I no longer had the edge in speed. I was therefore obliged to follow his tail and to empty my magazines in a single burst. But I never saw him go down as my aircraft had been hit by his machine gunners. I was

losing engine oil and oil was covering my windshield to the extent that I had difficulty getting back to the airfield at Sedes.

"Next day we moved to the airfield at Larisa, then to Karditsa, to Tanagra, and finally to Elefsis" (7).

Lt/Col Anagnostopoulos subsequently learned that the twin-engine aircraft was a Dornier 17, and that it had had to make a forced landing at Evros (8). The crew had been interrogated by the commandant of the AA defence sector, Col. Papatheodorou.

From 5 to 9 April 24 Mira flew four to six defensive patrols per day, providing a peak of eight patrols on 9 April.

Relocation to Trikala-Voevoda

On 9 April the squadron relocated with three fighters to Voevoda (also called Vassiliki), the Trikala airfield. Cover for retreating ground forces was flown twice: once in the Korytsa (9) sector with three Blochs piloted by Major Anagnostopoulos, Lt Ikonomopoulos and S/C (?) Smyrniopoulos together with three PZL 24s and three Gladiators; and once in the area around lakes Doirani and Prespes together with six Gladiators, when Lt Ikonomopolous shot down a CANT Z.1007bis.

7. Certain historians disagree with this itinerary. According to the archives, the withdrawal airfields were Sedes > Trikala > Amphiklia > Elefsis. Karditsa is only few kilometres south of Trikala.
8. The river in Thrace which separates Greece from Turkey.
9. The Albanian town of Korçe.

The EVA's last battle

At 0800hrs on 15 April, a general alert was called and all the fighters still at the Trikala-Voevoda airfield were scrambled, these were five Gladiators, five PZL 24s and the two remaining airworthy Bloch 151s piloted by Lt Ikonomopolous and Sgt. G. Mokkas. The Blochs spotted the enemy at 3000 metres: 20 Ju 87 dive bombers escorted by 25 Bf 109Es. But the Greek fighters were unable to warn the others by radio, the equipment used by the various squadrons not being compatible. They therefore attacked the enemy alone, not having the leisure to ascertain the effect of their attack as they were immediately pounced on by half a dozen Bf 109s. These shot down one Bloch, that of Sgt Mokkas, and badly damaged the other; according to some sources Sgt Mokkas had shot down two Ju 87s (doubtful) before he was himself shot down and killed. The remainder of the unit moved to Amphiklia the same day.

At Amphiklia-Dadion airfield, two of the unit's aircraft were ordered to fly cover for the Army of the Epiros, but this order was rescinded, the army having capitulated.

On 19 April the unit lost its remaining three fighters when it was repeatedly strafed by Bf 109s. The first attack came at 0725 hrs, when Delta 174 and Delta 176 were seriously damaged, the second at 1100hrs set Delta 174 and Delta 172 on fire and destroyed Delta 176, while the Bloch 151 left at Larissa, Delta 173, was destroyed by bombs.

No aircraft

On 19 April the unit moved without aircraft to Elefsis-Thriasson where it was disbanded on 27 April 1941. It had flown less than 200 operational missions, which was not much, but good given the (operational) serviceability of the Bloch fighter.

A map of the Balkan region showing flight paths from Yugoslavia to Greece. The map includes labels for countries: YUGOSLAVIE, BULGARIE, ALBANIE, and GREECE. Cities marked include Tirana, Thessaloniki, Athens, and others. Flight paths are indicated by arrows with aircraft icons and labels: Salonique-Sofos (07/12/40 - 09/04/41), Karaiskaki-Amygdaleon (20/01-12/02/41), Ambelokipi (06/11-07/12/40), Trilaka-Volovoda (Yassili) (08-10/04/41), Larissa-Kozaniar (13/11-09/12/40), Ampelaki-Cadon (15-19/04/41), Eleftheri-Thessalon (Aegean) (02/11/40), and Argos. A scale bar at the bottom indicates 0 to 100 km.

24 Mira Personnel – Ranks & Names

Sorties Flown by 24 Mira Bloch MB.15

October 1940 20 hours

Total	158 h
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Captions for photos on page 128. (All photos via Michel Ledet of Éditions Lela Presse.)

The Uruguayan Air Force F-80 at the USAF Museum

Eduardo Luzardo

Translation into English by Iñigo Artamendi

A visit to the USAF Museum at Dayton, Ohio, is not only a superb opportunity to observe the development of aeronautical technology from a replica of the first military Wright Flyer of 1909 to today's Lockheed F-117 Nighthawk stealth fighter, it also enables one to meet several aircraft with connections to the little South American Republic of Uruguay.

The visitor will find one of the Loening OA-1A amphibians that were part of a flight of six that took off from San Antonio, Texas, in December of 1926 on the Pan-American Goodwill Flight. Two were lost in an accident when they collided during their arrival at Buenos Aires, Argentina. The remaining three visited Montevideo. One of these, *San Francisco*, piloted by Capt. Ira C. Eaker and Lt. Muir S. Fairchild, is housed in the hangar that holds the Early Years Gallery. [Ed: Dan Hagedorn informs me that the *San Francisco* is on loan from the National Air and Space Museum and will be returning home now that the Udvar-Hazy center is complete.]

In a hangar dedicated to the jet-era aircraft can be found one of the F-100 Super Sabres of the Thunderbirds aerobatics team that visited Uruguay five times. Uruguayans saw the F-100 first in 1957, flying over the coast of Montevideo after taking off from Buenos Aires, Argentina, but without landing on Uruguayan soil. The Super Sabres returned in 1961. This time they landed at Base Aérea N 1 at Carrasco (Montevideo). In addition to the F-100, Uruguayans saw the aerobatics team with their F-84s in 1954, F-4s in 1973, and F-16s in 1992, all of which landed at Carrasco. Painted on the side of the cockpit of the preserved F-100 are the flags of all the countries visited. It's very pleasant for a Uruguayan to see a small reproduction of his national flag among them.

In addition, the collection of the USAF Museum holds an aircraft that formed the spearhead of Uruguayan military aviation during what is remembered as the golden age of Uruguayan wings. In the hangar that houses the Air Power Gallery, near the huge mass of a ten-engine B-36 "Peacemaker" bomber, is a Lockheed F-80C wearing the colors used during its service with the USAF during the Korean War. As with all the aircraft in the museum, a nearby panel gives a brief summary of the technical data of the type as well as the history of the example preserved: "This is one of the few surviving Shooting Stars that flew combat missions during the Korean War. It is painted in the colors of the 8th Fighter-Bomber Group to which it was assigned in 1950. After serving with the Uruguayan Air Force during the sixties it was transferred to the USAF Museum in December 1970, where it was restored and displayed to the public in 1979."

After its service in Korea, this aircraft, F-80C-10-LO, serial number 49-696 (FAU 221), arrived at Carrasco Air Base on the 6th of August 1958, along with 218, 219, 220 and 222. They were assigned to the Grupo de Aviación No. 2 (Caza) stationed at the Base Aérea No. 1. The Shooting Star, a name seldom used in Uruguay, was the main combat aircraft of the FAU during the

sixties when it was used in almost all combat roles. Formations of these beautiful fighters, easily recognizable due to their wing tip tanks, were a common feature at parades on national holidays and other important events, both in Uruguay and in Argentina. An aerobatics flight was formed with them (Los Cocodrilos), clearly demonstrating the high level of airmanship of their pilots. In 1970, the surviving aircraft were retired from active duty and, wisely enough, aircraft 213 was reserved for the Museo Aeronáutico of Uruguay. Serial 210 was selected for display at Brigada Aérea I (at Base Aérea No. 1, Carrasco). Today 210 guards the entrance to the Brigada Aérea II (at Base Aérea No. 2, Durazno), in the middle of the country. Since the early eighties this base has been the home of the Grupo de Aviación No. 2, where nowadays the Escuadrón Aéreo No. 2 (Caza) is equipped with the Cessna A-37.

Meanwhile, in 1970, F-80C 221 (and also 218, destined for the USAF Armament Museum at Eglin AFB, Florida) returned to their homeland, where it is especially valued for being a veteran of the Korean Conflict. The USAF Museum is a good home for 221, where more than a million visitors each year can see her sleek lines. These same sleek lines are displayed by her sister 213 at the Museo Aeronáutico in Uruguay.

Note: The author would like to acknowledge Mr. Juan Maruri for the information taken from his work "Historia de la Fuerza Aérea. Volume II", and to thank very specially his brother Néstor Luzardo and his friend Jack H. Smith and wife Dianna, who allowed him to visit the US and the Museum respectively. Thanks also to Dan Hagedorn, Gary Kuhn, Iñigo Artamendi, and Pedro & Fernando Ceróvaz.

Eduardo Luzardo (SAFCH #1383), Picardía M.267 S.37, Barros Blancos, Uruguay.

Captions for the photos on page 143. (All photos via the author.)

1-3. Lockheed F-80C '221' in FAU markings. This is the aircraft that is now on display at the USAF Museum in Dayton, Ohio.

4. This photo of FAU '221' shows the unit emblem of the Grupo de Aviación No. 2 (Caza). The proud pilot is unidentified.

5. A very poor quality photo, but nevertheless interesting since it shows four of the five FAU F-80C in flight. Note the 'FAU' on the starboard wing and the national insignia on the port wing. It is also the only photo on this page that shows the anti-glare paint on the inner sides of the tip tanks. These markings are not obvious in the other photos on this page. The subject of this article, FAU '221', is furthest from the camera.

6. Lockheed F-80C-10-LO, serial number 49-696 on display at the USAF Museum. It carries the colors of the 8th Fighter-Bomber Group with which it served during the Korean War. Before going to the USAF Museum, it served with the Uruguayan Air Force as '221'.

Ansaldo Sopwith Baby

Colin Owers

In 1916 Italian Naval Aviation was in crisis: new designs were in preparation but the situation was such that enemy designs were adopted, such as the Lohner flying boat. It was thus decided to construct the British Sopwith Baby floatplane under license and production was entrusted to Ansaldo.

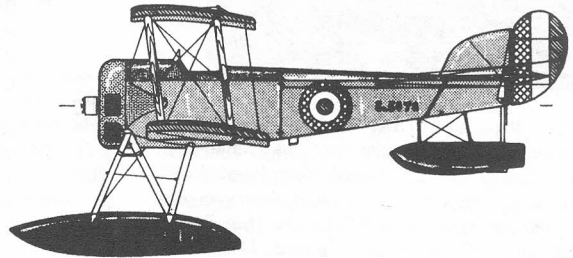
The main difference between the Italian version and the British original was in the engine. The Italians adopted the Le Rhone 9J of 120 hp, the same engine used by the Italian Nieuport and Hamiot scouts. This was installed in a fully circular cowl with large cooling apertures. 100 Ansaldo Baby fighters were produced in the *Cantiere aeronautico N.1* at Borzoli-mare near Genoa. The first four were built in 1917, the rest the following year. They were too late to serve in their intended function as fighters, for better Italian designs, such as the Macchi, had already entered service.

It seems probable that the British had supplied Italy with Sopwith Baby fighters since 1916 as there was a small type of Sopwith recorded as serving in the *Regina Marina*. 'which cannot compete due to its quality with more modern fighter': A photo of Sopwith Baby serial So.6854 appears in the book *L'Aviazione Italiana in Guerre* by Luigi Contini. This machine had a horseshoe type cowl and a smaller diameter engine than the Le Rhone: photos also show Sopwith with serials from So.5003 to So.5072, placing them before 1918, the year of major Sopwith production.

The Italian Sopwith was pleasant to fly, well-balanced and light. Its small span and ailerons on all four wings made it very maneuverable but while fast for its size and power, it was

not good enough for the Front line conditions of the Adriatic of 1918. It was therefore relegated to training duties and some continued in service after the end of the war. A reference in the *Yearbook of Aeronautics* for 1924 mentions that several were being used for tourism, however not one was given a civil registration and so this statement seems doubtful.

Acknowledgements: Special thanks to Roberto Gentili whose researches are the foundation of this article and who supplied the original plan of the national markings: also thanks to Tomasz Goworek who translated the original Italian text.



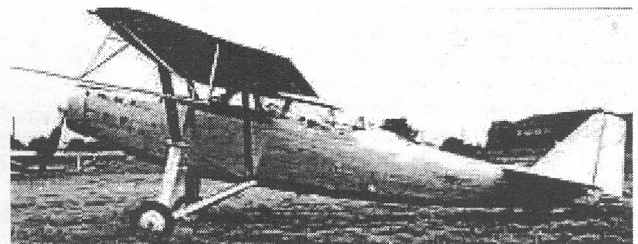
Colin Owers (SAFCH #281), PO Box 73, Boorowa NSW 2586, Australia. E-Mail: haaowers@dragnet.com.au

Nieuport-Delage Ni-D.580

John Raymond

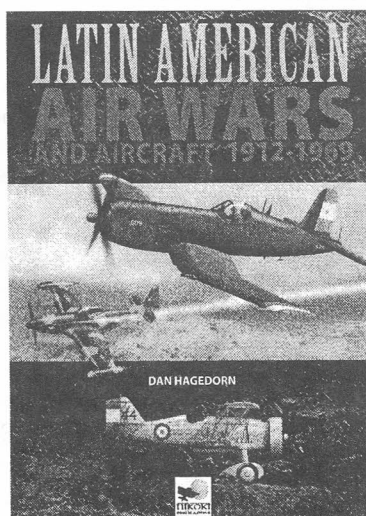
Sometime during 1928 the French air ministry decided that the Aviation Militaire's reconnaissance aircraft were completely obsolete. They started a re-equipment program, and among the new types demanded was a two-seater optimized for the low-altitude tactical reconnaissance role with open cockpits and good slow-flying characteristics. Nieuport-Delage responded to this requirement with the NI-D.580. This was a parasol-wing monoplane of all metal construction with parallel struts to brace the wing on each side. These were attached to the lower longerons at points that also supported the legs of the main units of the fixed tailskid landing gear. The location of the Ni-D.580's wing in the parasol position contributed significantly to the type's good fields of vision.

The requirement virtually demanded the Hispano-Suiza 12Nb engine, and eight companies offered ten designs. Only four of these reached the prototype stage, one of them being the Ni-D.580 that first flew in the spring of 1931. The official trials that followed in the summer were exhaustive, and though the Ni-D.580 was generally satisfactory, in October of that year the official choice fell on the A.N.F. Les Mureaux 110/111 type. Only two prototypes were built and the second had many improvements.



- Engine: one 650-hp (485-kw) Hispano-Suiza 12Nb inline piston engine
- Performance: Max speed was 165mph at optimum altitude. The service ceiling was 26,245 ft. The aircraft's range was 621 miles
- Weight: empty 4,008 lbs. maximum take off 5,809 lbs.
- Dimensions: span 49ft. 2.5 in. length 37ft. 1 in. height 11ft. 9 in. wing area 409.04 sq. ft.
- Armament: two fixed and two trainable 0.303-in. (7.7mm) machine guns.

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In the past, SAFO has occasionally recommended books for the fictitious "Small-Air-Forces Book of the Year" award. Now, I would like to nominate Dan Hagedorn's *Latin American Air Wars and Aircraft 1912-1969* for the "Small-Air-Forces Book of the Decade" award. Dan is an acknowledged expert on Latin American aviation who has generously shared his knowledge by authoring numerous books and articles. In *Latin American Air Wars*, Dan presents the results of years of gathering information on aviation in Latin America.

Usually, a publisher's blurb on the dust jacket of a new book is full of hyperbolae and exaggerations. However, this is not true of Hikoki; I reprint their blurb here shamelessly because it is an accurate summary of the contents:

"The aircraft were colourful and their crews were often courageous, but they were virtually unknown beyond the South American Continent. Throughout the first sixty years of practical flight in Latin America, obscure designs carried the colours and markings of many nationalities and this book contains hundreds of rare photographs of such aircraft published for the first time - from the frail Wright Model Bs through the ensuing border skirmishes, revolutions and full-scale warfare to the last ever aerial engagements between piston-engined fighters. From the Mexican, Paraguayan, Venezuelan, Brazilian, Guatemalan and Uruguayan revolutions to civil wars and unrest in Chile, Cuba, Peru, Ecuador, Argentina, Nicaragua, Bolivia and Haiti to the so-called 'Leticia Incident', the 'Revolt of the Lieutenants' and the 'Soccer War' - all are portrayed with remarkable illustrations and detail.

"The book reveals an astonishing range of aircraft, including the Argentine North American SNJs and Gloster Meteors, Bolivian Curtiss Hawk IIs, Curtiss-Wright 14R Ospreys, Brazilian Waco CTOs, Chilean Curtiss Falcons, Colombian Bellanca 77-140s, Costa Rican North American F-51D Mustangs, Cuban Vought Corsairs and exile force Douglas B-26s, Dominican Republic de Havilland Vampires, Guatemalan Republic F-47N Thunderbolts, Honduras Stinson Model 'O' Seniors, from the Mexican Martin 'Sonora' to the Vought V-99M Corsair, Nicaraguan Douglas C-47s, Paraguayan Fiat C.R.20s and Potez 2SA-2s, Peruvian Douglas 0-38Ps, Uruguayan Waco JHDs and the Venezuelan North American F-86F and de Havilland Venom."

"But wait," as they say on TV, "you get

more". In a startling innovation, the publisher has limited the book to photos and color drawings. The text is available online for free. This seems to be the best way to take advantage of both media; the printed media for illustrative material and cyberspace for the words. If this book were to contain all the photos, color side-view drawings, and the text, it would be very expensive - and very heavy. To be a realistic publishing venture, it would have to contain only a small fraction of the photos included in the present book.

To illustrate the breath of coverage, the chapter headings of the book follow.

1. The Mexican Revolutionary Period 1911-1938
2. Unrest in Brazil 1914-1915
3. Brazil- The Copacabana Revolt: 1922
4. Brazil- Tenente's Revolt: 1924-1927
5. Paraguayan Revolution: 1922
6. Chilean Military Intervention: 1925-1932
7. Nicaraguan Revolution: 1927
8. The Chaco War - Paraguay and Bolivia: 1928-1935
9. The Venezuelan Rebellion: 1929
10. The Guatemalan Revolution: 1929-1930-1934
11. Internal Turmoil- Peru: 1931-1932
12. The Brazilian Revolution: 1930-1932
13. The Leticia Incident: Colombia and Peru: 1932-1933
14. Cuban Revolutionary Activity: 1931
15. The Uruguayan Revolution: 1935
16. The Peru-Ecuador Border War: 1941
17. The Second World War: 1939-1945
18. Colombian Civil War: 1946-1947
19. Paraguayan Civil War: 1947
20. The Caribbean Legion Period: 1947-1950
21. Argentine Military and Naval Rebellion: 1951
22. The Bolivian Revolution: 1949-1952
23. Operation PBSuccess: 1954 The CIA invasion of Guatemala
24. The Nicaraguan 'Invasion' of Costa Rica: 1955
25. The Argentine Naval Rebellions: 1955
26. The Cuban Navy Revolt: 1957
27. Border Conflict - Honduras and Nicaragua: 1957
28. The Venezuelan Revolution: 1958
29. Bay of Pigs - The Air War: 1961
30. Guatemalan Counter-Insurgency: 1962-1992
31. The Invasion of Haiti: 1963-1980
32. Argentine Revolution: 1963
33. Intervention - Dominican Republic: 1965
34. Che Guevara in Bolivia: 1966-67
35. "El Guerra de 100 Horas": 1969

Note that while a few of these chapters cover well-known events such as the Chaco War, the Leticia Incident: the Bay of Pigs and the Soccer War, the majority of chapters cover conflicts that have seen little or no coverage in the English language press.

So much for the breath of coverage. How about the depth of coverage? As examples of the book's and online material, the content of four chapters, two long and two short are detailed below.

Chapter 12: The Brazilian Revolution: 1930-1932. 9 pages with 9 pages including 34 photos and

4 color side-view drawings [Potez 25 T.O.E., Curtiss D-12 Falcon, and Vought V66-B (2)]. Online: 31 pages of text.

Chapter 13: The Leticia Incident: Colombia and Peru 1932-1933. 17 pages with 72 photos and 7 color side-view drawings [Colombian Curtiss-Wright BT-32 Condor; Curtiss D-12 Falcon, Sea Hawk II, Cyclone Falcon (2), and Junkers Ju 52/3m; and Peru Curtiss Sea Hawk II]. Online: 37 pages of text.

Chapter 26: The Cuban Navy Revolt 1957. one page including 4 photos and 3 color side-view drawings [Republic P-47D (2) and Douglas A-26D Invader]. Online: 2 pages of text.

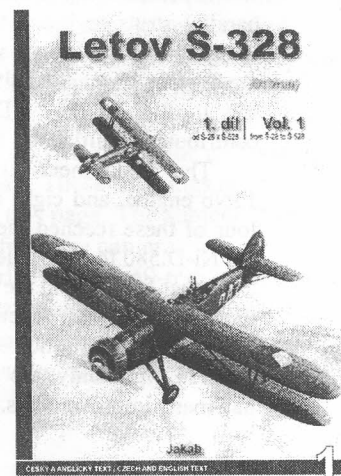
Chapter 27. Border Conflict - Honduras and Nicaragua 1957. 2 pages with 6 photos and 3 color side-view drawings [Lockheed P-38 Lightning (2) and Douglas C-47]. Online: 3 pages of text.

The book is well constructed with sturdy binding and a hard cover that will stand up to the hard usage that is expected from most readers. The reproduction of the photos is uniformly excellent. While the size of the photos varies considerably, the most interesting ones are presented in reasonably large size. The color drawings are well done in vibrant colors and are absent the artistic embellishments, such as shadows, that sometimes obscure the drawings in other books.

Latin Air Wars is not the history of military aviation in Latin America. It is an account of the aerial activities during the many large and small conflicts that bedeviled Latin America. For the history of the air arms of Latin American countries, see such works as: Dan Hagedorn's *Central American and Caribbean Air Forces* (Air-Britain Publications 1993; John M. Andrade's *Latin American Military Aviation* Midland Counties Publications 1982; and Green and Fricker's *Air Forces of the World* (MacDonnell & Co. 1958. [Ed: One hopes that Dan Hagedorn will someday do a book on the air arms of South America similar to what he did for Central American air arms.]

Latin American Air Wars and Aircraft is an absolute must for all small-air-force enthusiasts. The photos and color side-view drawings will bewitch the modeler looking for exotic new color schemes for the model kits overflowing the loft, and these plus the downloaded text will keep the history buffs captivated late into the night.

[Ed: If you don't have a PC, you should be able to go to your local library or coffee shop to download the text.]



Letov Š-328, Vol. 1; From Š-28 to Š-528, by Jiří Vraný. Jakob #1. Published by Jiří Jakob, Nevojice 144, 685 01 Bucovice, Czech Republic. E-mail: jakob@razdva.cz. 80 A-4 size pages (8 in full color); 20 color side-views; 108 b/w photos. Softbound. (2005) Czech/English text. ISBN 80-903637-0-9.

The Letov Š-328 was one of the most attractive biplane reconnaissance aircraft of the immediate pre-WWII period. The 421 Š-238s built served the Czechoslovak air force with distinction in both peace and war. Only 41 were lost before the German occupation.

This excellent book covers the development of the design from the Š-28 to the Š-528, the adoption of the Š-328 by the Czechoslovak air force, and its use in the various border conflicts with Czechoslovakia's greedy neighbors in the time leading up to WWII. The volume concludes with the 15 March 1939 occupation of Czecho-Slovakia by Germany.

[Editor's note: The story of the use of the Š-328 by the Slovak and Bulgarian air forces and the Luftwaffe is covered in the second volume of this series. This volume that includes a list of all Š-328s built and scale multi-view drawings will be reviewed in the next issue of SAFO.]

The content of this first volume can be summarized as follows: Sections: (1) "From Š-28 to Š-528". 24 pages including 40 photos [including Latvian & Turkish Š-16 and Estonian Š-228E], (2) "The Czechoslovak Air Force Bets on the Š-328" 25 pages including 43 photos, (3) "The War before the War" 19 pages including 23 photos. Color Illustrations: 12 color side-views [Finnish Š-528 (1); Š-328n (2); Š-328 (7); Š-328v (1); & Š-528]. Two color 4-view drawings ['B-1' & 'OK-PCB']. All Czechoslovak except for the lone Finnish a/c.

Things I thought I knew, but really didn't: Although I have been a student of pre-WWII Czechoslovak aviation for many years, I learned much new from this book; it also cleared up a lot of misconceptions. (a) "Letov" is the abbreviation for the state-owned Czechoslovak Military Aircraft Factory (*Čs. Vojenská továrna na letadla*). (b) The Š in the designation of Letov's aircraft was for their chief designer, Alois Šmolík. (c) The S-328 was originally design to meet the requirements of the Finnish air force, but it was rejected by the Finns under pressure from Fokker to adopt the Fokker C.V. The Czechoslovak air force then chose the Š-328 over a Letov design that was fashioned to meet Czechoslovak requirements. (d) A number of Š-328s were built as Š-328n night fighters equipped with four machine guns (a pair in each the upper and lower wing), a spotlight, and flares. They were not very successful due to problems of operating with searchlight crews (no radar, you know). (e) The "v" in the designation of the Š-328v float plane stood for "vlečná" target tug, not for "vodní" water-borne. (f) Kumbor, on the coast of the Adriatic Sea where the Š-328v were frequently photographed, was leased from Yugoslavia for use as a firing range. (g) Because crude oil had to be imported and was subject to disruption, the Czechs modified their aircraft engines to run on BiBoLi, a mixture of 50% petrol, 30% ethyl alcohol, and 20% benzene. (Sound familiar?). This had the unintended consequence that, even if the Allies had wanted to intervene on Czechoslovak behalf when Germany invaded, their aircraft could not have operated from Czechoslovak airfields because their aircraft could not use this "alternate" fuel. (h) The *Četnické letecké hlídky* (Air Gendarmerie patrols – sometimes referred to as "Border Guards") was formed to patrol the Sudetenland frontier since the

Munich Agreement forbid military aircraft of the "aggressive" Czechoslovak Republic from intercepting civil-aircraft incursions or flying in the vicinity of the border.

The most eye-opening part of the book is the description of the aerial activities during the many border incidents by Czechoslovakia's neighbors: Henlein's Nazi-supported *Sudetendeutsche Partei Freikorps* in the west, Polish *Strzelec* on the north, and Hungarian *Szabadcsapatok* "volunteers" in the south.

In what could be considered as the first aerial casualty of the coming WWII may have occurred on 23 May 1938 when Š-328.80 crashed near the border killing both crew members. A post-WWII investigation failed to determine if this Letov was brought down by German gun fire. A more conclusive candidate for this doubtful honor is Š-328.237 that was shot down by a Hungarian fighter (Fiat CR.32?) on 22 October 1938. The pilot survived, but the observer perished.

This book cannot be too highly recommended to all aviation buffs. The high-quality glossy paper allows for excellent reproduction of the photos. The few that are a bit washed out are acceptable considering their importance and their age. The color drawings are well done and accurately represent to colors of the aircraft. Of particular interest are the different colors used by the air force and the border guard. The covers and binding are sturdy enough to stand up to the repeated readings this book will experience.

The English translation is a bit ungainly and repeated reading is necessary to gain the most from the text, but the effort is well rewarded with new insights gained into the period immediately prior to the start of WWII. And, the photographs and color drawings are priceless.

Other volumes available from Jakob are: #2 Letov Š-328 Vol 2; #3 Avia BH-33"; #4 Czechoslovak Prototypes 1938 Vol. 1 (reviewed in SAFO #118); and #5 MiG-15 Vol. 1. In preparation are: #6 Morane-Saulnier MS.406 Vol. 1 and #7 MiG-21 Vol.1.

Review copy provided by Jiří Jakob of Jakob Publishing.



Le Bloch MB-152, by Serge Joanne. Collection Histoire de l'Aviation n°13. Éditions Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. (2003) Hardbound. ISBN 2-914017-12-X. Web Site:

www.avionsbateaux.com. E-mail: lela.presse@wanadoo.fr.

This is a BIG book, both in terms of the depth of coverage and its sheer physical size [528 A-4 pages and weighing in at 2.26 kg (5 lbs)]. The text and photo captions are entirely in French, but the multitude of photos, sketches, and color drawings speak a universal language. The book is divided into five parts:

"Première partie: Essais et production." 46 page including 92 photos describing the earlier Bloch designs and the prototypes of the MB.150-157.

"Deuxième partie: Description et utilisation." 76 pages with hundreds of sketches and photos of the minutest details of the airframe, cockpit, systems, engine, and armament. Maybe not sufficient to build a flying reproduction, but more than enough to keep the technically-oriented enthusiast entertained for days, not the mention the modeler bold enough to consider scratch building a super-detailed 1/32-scale MB.152.

"Troisième partie: Les operations." 302 pages. This is, by far, the longest section in the book. The day-by-day activities of 12 French units are described during the Phony War, the Battle of France, and after the Armistice. A description of the coverage of one group will suffice to give an idea of the depth of coverage of all units. GCII/1: The pre-10 May activities are described in 2 pages. During the Battle of France, each days activities are described including a table listing the number of missions and sorties with the names of the pilots (14 pages including 20 photos). The activities of the group with the "Armée de l'Air de l'Armistice 26 juin 1940 – 30 novembre 1942" is described in 5 pages (17 photos). The coverage of the group ends with several tables. One lists victories by date, aircraft destroyed, location, and victorious pilot. Other tables list the number of victories by pilot; the number of victories by type, and the c/n of Blochs serving with the group. (Unfortunately, information on the identity of the a/c flown by the victorious pilot and about the pilot is absent from these tables, but can be extracted with much work by cross referencing these tables with the tables in the appendix.) Finally a map of France shows the location of the airfields used by the group.

Included in this 3rd partie, and of particular interest to small-air-force enthusiasts, are the histories of the "Chimney Flights" (13 pages 28 photos) in which many Czechoslovak and Polish pilots participated in the defense of specific industrial targets. Also included are the stories of the Blochs with the Aeronautique Navale and the CEV. This section continues with 5 pages (35 photos) of Blochs whose units are unknown.

The 3rd section concludes with "Les Bloch 152 sous couleurs étrangeées" describing the use of the Bloch by the Luftwaffe (9 pages 24 photos), Greece (5 pages 9 photos), and the Bulgarian interest in the type (one page).

"Quatrième partie: Marques et camouflage." (54 pages). With subsections "Marques de nationalité sur les chasseurs Bloch" (3 pages 4 photos); "Teintes et schemas de camouflage" (3 pages 11 photos); "Marques et insignes" (4 pages); "Les insignes personnels" (one page 13 photos); "Héraldique" (28 pages describing the unit insignia including color drawings of each insignia (15 pages of color drawings); "Planches de profiles" color side-view drawings of 38 French [including 8 Armée de l'Air de l'Armistice (Vichy)]; 4 Luftwaffe; one RAF; and one Greek aircraft; and six full-page 3-view drawings (port, starboard, & top). These later will be particularly appreciated by

modelers because they show the extremely complicated upper surface camouflage schemes.

"Cinquième parte: Annexes." (51 pages). Arguably the most useful part of this very useful book. "Tableau de production des Bloch 151, 152, 155" 15 pages listing c/n number, type, matricule (under wing number beginning with "Y-"), and a/c history before and after the armistice. "Situation des Bloch MB.151 au 10 mai 1940" "Liste des 320 Bloch indentifiés en zone libre". "État des Bloch 151/152/153/155 en zone libre au 20 juillet 1940". "Effectifs en personnel des groupes de chasse de l'Armée de l'Air équipés de Bloch 151/152" (25 pages). "Organigramme de commandement des unités polonaises en France"

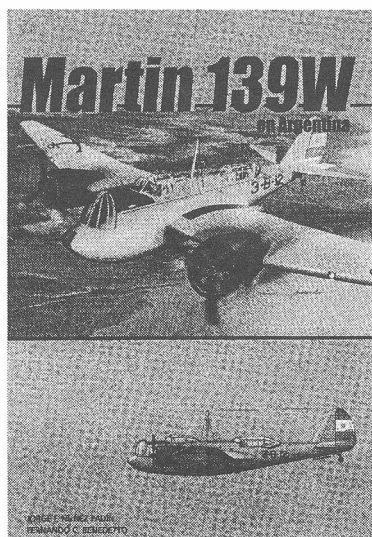
The book ends with seven foldout pages (both sides) of multi-view scale plans of the MB.150, 151, 152, 155, 157, and a detailed drawing of the Ghome-Rhône 14N.

The physical aspects of the book are as high in quality as the contents with glossy paper, well-reproduced photos, and colorful drawings. The excellent binding and hard cover are designed to hold up to the hard usage this book will deservedly receive from its enchanted readers.

If you're convinced that this book is best book ever published on a single aircraft type, but are still reluctant to buy one because of your poor knowledge of the French language, consider the following passage describing the final days of one of the Polish Chimney Flights. With a little bit of patience and an inexpensive pocket French-English dictionary, most enthusiasts will have little trouble extracting the gems of information presented here.

"Le dernier vol opérationnel de la patrouille polonaise a lieu le 16 juin à 19h00. Le lendemain, le personnel français évacué la base de Châteauroux pour Tarbes, laissant les Polonais sans instructions. Le 17 juin, après avoir réquisitionné un camion, le Lt Henneberg évacue cinq pilotes et dix-neuf rampants en direction de Bordeaux. En compagnie des S/Lt Kudrewicz et Retinger, il quitte la base par la voie des airs avec leurs Bloch pour rejoindre Bordeaux, tandis que le Wielgus prend place à bord d'un Simoun en compagnie du mécanicien Pokrzywka. Le lendemain, ils décollent pour Nantes où ils négocient leur transfert pour l'Angleterre avec un officier de la RAF. Les pilotes partent à 14h00 pour un vol d'environ 2h 30min pour Andover [22]. Le 19 juin, ils remettent leurs avions aux Britanniques et sont dirigés vers West Kirby. Quant au personnel parti par la route, il arrive à Bordeaux le 18 juin d'où il s'embarque pour Grande-Bretagne le jour suivant. [22] S'il est à peu près certain que le Lt Henneberg s'envola à bord du MB.152 n° 656, l'identité des autres appareils ayant quitté Nantes n'est pas connue. Toutefois le sort des Bloch 152 n° 657 et 658 étant connu après l'armistice, on ne peut s'agir de ces derniers."

Éditions Lela Presse's book on the Bloch MB-152 is highly recommended to all enthusiasts and modelers interested in French aircraft of WWII. It is also recommended to everyone who appreciates an excellently-written and produced aviation book. It is undoubtedly the definitive word on the Bloch 152 and will serve as a paradigm for anyone thinking about writing a book on a single aircraft type.



Martin 139W, WAA & WAN en Argentina, by Fernando C. Benedetto & Jorge Félix Núñez Padín. (2007) E-mail: jfnpadin@yahoo.com.

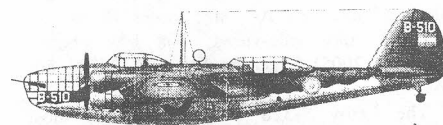
The newest release by our friend Jorge is a slight but noticeable departure from his previous publications. His Serie Aeronaval were distinguished by a blue cover while his Serie Fuerza Aerea Argentina has a red cover. Now he comes out with a yellow-cover series that apparently will cover aircraft that were operated by both services.

The first volume in the yellow series covers the Martin 139W twin-engine monoplane bomber that served with the Aeronaval, the Aviacion de Ejercito, and the Fuerza Aerea Argentina. The format is exactly the same as Jorge's other monographs: 32 A-5 pages (155 mm by 220 mm; approximately 6 inch by 8.5 inch). There are 26 b&w photos and 2 color photos (the latter of the B-10 at the USAF Museum). The reproduction of the photos is excellent, thanks to the quality of the original prints and the high quality of the glossy paper Jorge uses in his books. There are 4 beautiful color side-view drawings (2 Aeronaval '2-B-3' & '3-B-12' and 2 Fuerza Aerea 'B-510' & 'B-515') and a top-view drawings of '3-B-12' showing off its colorful plumage of gray fuselage, yellow wings with black 'anchors', black engine nacelles, and blue/white/blue elevators. In a slight departure from the other volumes in Jorge's series, the cover photograph has been replaced by a color painting ('3-B-12').

The text, entirely in Spanish, is divided into four parts: (1) Historia Aviacion Naval - 3 pages; (2) Historia Aviacion de Ejercito y Fuerza Aerea Argentina - 4 pages; (3) Tecnica - 3 pages; (4) Colores e Insignias - 4 pages. The gremlins have gotten to this last section because it consists of the service history of each of the 35 individual 139s that served in Argentina. The description of the colors and insignia is left to the color illustrations.

Of great surprise to this reviewer, and of potentially great interest to the modeler, are the photos and side-view drawings of several Martin 139s ('B-510' & 'B-511') with the nose turret replaced by an extended 'greenhouse' nose. I've taken the liberty of including the side-view drawing of this modification with this review. Everything else about these aircraft seems to be standard. This would be an interesting conversion project for the 1/72-scale Williams Brother's B-10 kit for the adventuresome modeler. I wonder if the nose from a B-25C kit would fit. Any information readers can

provide about this conversion would be most welcome and would be published in SAFO.



Martin 139W en Argentina is a welcome addition to Jorge's series of monographs on Argentine aircraft. It is a must for anyone interested in Argentine aircraft in particular or in those funky-looking monoplane bombers of the 1930s.

Review copy provided by the publisher, Jorge F. Núñez Padín. Copies are available from the SAFCH Sales Service for \$10.00 in the USA and \$12.00 row (rest of world).



Vicker-Supermarine Spitfire: F Mk.22/24, by Michal Ověčáček and Karl Susa. Mark I Guide 4+MG02. Published by Mark I Ltd., PO Box 10, 100 31 Prague 10 -Strašnice, Czech Republic. 28 A-4 pages. Softbound. (2006) The text and photo captions are entirely in English. ISBN 80-86637-03-4.

This is the second in a new series from our friend Michal Ověčáček of 4+ Publication. The publisher advises: "This handbook continues our recently established line of easy-to-study monographs that deal with specific plastic or resin scale models." The differences from the familiar 4+ monographs is subtle; mainly in its slightly shorter text that eliminates the "Technical Description" section and the lack of any scale drawings.

In the usual 4+ format, it starts with 4 pages of compact text describing the development and service history of Mk.22/24. This is followed by 4 pages with 19 b&w photos of the Spitfire in service. (A color photo of a Mk.22 in flight adorns the cover.) The book then gets down to brass tacks with 18 pages of photos of details of two museum aircraft. This section consists of 81 photos, 25 in color, and 12 line drawings of cockpit detail and construction details. Finally, there are 4 pages of color drawings: 13 side-views of aircraft in RAF markings with corresponding top views (3), a bottom view (1), and partial views of the underwing markings for the remaining aircraft.

The for enthusiasts of the aircraft of the small air forces there are color side-view drawings of an

Egyptian Mk.22 '699', a Syrian Mk.22 '019', a Southern Rhodesian Mk.22 'SR65', and a Hong Kong Auxiliary Air Force Mk.24 'VN492'; all with views of the under-wing markings. The text has short paragraphs on the purchasing, serial numbers, and service use of the Mk.22s used by Egypt (19 a/c), Syria (20 a/c), & Southern Rhodesia (22 a/c), and the Mk.24s used by Singapore (2) & Hong Kong (8 a/c).

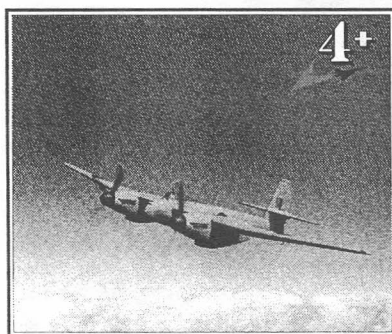
The Mark I Guide on the Spitfire F.Mk.22/24 is an excellently-produced monograph with a informative text, well-reproduced photos, and beautiful color drawings. The quality of the paper is high gloss and the cover is substantial. This book will stand up to repeated use and is highly recommended to both the history buff and the modeler. The only currently available kit of the Spitfire Mk.22/24 that I am aware of is the 1/72-scale resin kit from CMR advertised in the current (January 2007) Squadron Shop catalog at the mind-boggling price of \$59.40.

The other mark I Guide available is the first in the series (4+MG01) *Hawker Hunter F Mk.6/6A*.

[Ed: If Mark I Guide series is designed for the modrlr, they should have included a list of kits.]

Review copy provided by Michal Ověčák of 4+ Publications.

4+ publication



Westland Welkin

F Mk.I, NF Mk.II

world war II wings
line
1/72 scale photo

Westland Welkin: F Mk.I, NF Mk.II. World War II Wings Line. 4+ Publication #020. Published by Mark I Ltd., PO Box 10, 100 31 Prague 10, Czech Republic. 28 A-4 size glossy pages. Softbound. (2005) Text and photo captions are entirely in English. ISBN 80-86637-01-8.

In keeping with the Welkin's historical importance, this volume in the 4+ series is shorter than many of their other releases. However, the coverage is complete and presented in 4+'s usual attractive format. The book begins with three pages of text covering the history and technical aspects of this single seat, high-altitude, twin-engine fighter. It was developed to meet the threat of high-altitude Luftwaffe bombers that never materialized. Only 2 prototypes and 75 series Mk.I Wilkens were built. One of the series machines was converted to the NF Mk.II two-seat night fighter.

The lion's share of the book is 4+'s usual excellent illustrative coverage. This consists of 11 pages of photos of the aircraft (37 photos – one in color), 10 pages of photos and sketches of exterior

and interior details (37 photos and 10 sketches from maintenance manuals), a re-moveable (nothing printed on the back) color "poster", 2 pages of color side-view drawings ['DX281' in standard day-fighter camouflage of Dark Green, Ocean Grey upper surfaces and Medium Sea Grey undersides (port, starboard, and top views), 'DX289/ZQ-V', 'DX290', 'DX309', 'DX319', 'DX340' (the latter a modified Mk.I) in Medium Sea Grey upper surfaces and PRU Blue under surfaces, and the sole NF Mk.II 'PF370' in Medium Sea Grey upper surfaces and Yellow undersides. All aircraft are illustrated with side views, a top view, and scrape views of the markings on the lower surface of the wings.), and a "center fold" (4 pages) 1/72-scale multi-view drawing of the Mk.I, Mk.I (modified, and NF Mk.II. The book ends with one page of text on "Armament and Equipment" and "Colours and Markings"

Don't let the small number of pages of text mislead you. The pages of text are densely packed with information in a small type font. The reproduction of the photos is excellent, the color darings are colorful, and the scale drawings are outstanding.

The 4+ publication on the Westland Welkin would make a welcome addition to the library of any aviation enthusiast who appreciates a beautiful aircraft. Unfortunately, the modeler has not been well served by the kit industry. The only kit of the Welkin I can recall is the 1/72-vacuform kit which is probably impossible to find now.

Review copy provided by Michal Ověčák of 4+ Publications.



Samolot myśliwski Mitsubishi A6M2 Reisen Zero/Zeke, by Krzysztof Zalewski. Biblioteka Magazynu #13. Published by Magnum-X, ul. Grochowska 3006/310, 03-310 Warszawa, Poland. 112 A-4 size pages. Softbound. (2006) Text entirely in Polish. ISBN 83-88920-35-9.

The Japanese air arm during the Pacific War was definitely not a "small" air forces, but all aviatiions enthusiasts appreciate a well-done book with a thoroughly research text, well-reproduced photos, and well-documented color side-view drawings. The text of Biblioteka Magazynu #13 is in Polish, and although I do not read Polish, this monograph score well on the latter two points. Two

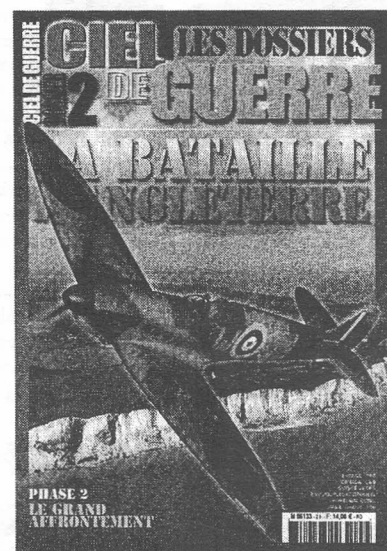
out of three ain't bad, especially when they're as well done as in this book.

First, the text: The history of the A6M2 Models 11 and 21 is covered from the design phase, including photos of the wooden wind tunnel models, construction of the prototype, combat in China, Pearl Harbor, Wake Island, the Philippines, Malaya, the East Indies, New Britain and New Ireland, Australia, the Indian Ocean, Coral Sea, the Aleutian Islands, and Midway. Too bad I don't read Polish bwcuse this text seems to be one of the most complete I've seen.

On the illustrative side, which doesn't need the knowledge of any particular language, there are 90 photos, 7 pages of multi-view 1/72-sale drawings, 24 color side-view drawings including one in Chinese markings and one carrying US markings. I particularly appreciated the captions of these color side-view drawings since I like to finish my models in the markings of aircraft identified with a specific historical event, and these captions identify the unit (or carrier) and the campaign of each aircraft. For example, A6M2 Model 21, 'AIL-101', was flow by kpt. Yoshio Shinga off the aircraft carrier Kaga during the raid on Pearl Harbor.

Biblioteka Magazynu #13 on the Zero models 11 and 21 is a useful reference for the students of the Pacific War and for modelers intending to add another model of the Zero to their collection.

Review copy provided by the publisher, Magnum X.



La Bataille d'Angleterre: Phase 2 Le Grand Affrontement, by Jose Fernandez. Ciel de Guerre Dossiers #2. A-4 size. 89 pages. 14 € in France.

In my review of Ciel de Guerre Dossiers #1, *La Bataille d'Angleterre Phase 1*, I asked whether there was a need for another book on the Battle of Britain (especially one in French). The answer was a qualified "yes" provided there was an emphasis on otherwise neglected aspects of the Battle. This latest book in TMA's series makes the grade.

While the first 57 pages of this book are a straightforward day-by-day account of the actions from 8 August to 30 September 1940, the sections that set this book apart from the others of its kind are the chapters on "Ultra", one page including one photo, "Le système de Guidage des Avions Allemands", 3 pages including 4 photos and one map (the bombing of Convetry), "L'Artilldifie Anti-Aerienne Britannique", 8 pages including 16 photos

and 2 maps, and "Les Unites Polnaises dans la Bataille Angleterre" 7 pages including 16 photos.

An interesting innovation, only partly successful, is the inclusion of 7 maps showing the paths of approach and retirement of Luftwaffe raids and those of the RAF defenders showing the units deployed and the number of aircraft involved. Also shown are the locations of aircraft shot down on both sides. This makes for a very busy map, but one that does pay off with careful study.

The selection and reproduction of the photos are up to the usual Ciel de Guerre excellent quality. The same can be said for the color illustrations. There are 120 photos, one color 3-view color drawing (Ju 87), and 56 color side-view drawings [Hurricane (9), Spitfire (11), Defiant (3), Battle (1), Blenheim (1), Beaufort (2), Beaufighter (1), Whitley (3), Bf 109 (4), Bf 110 (6); He 111 (5); Ju 87 (4), Ju 88 (4)], Do 17 (1), & Do 215 (1).

Of particular interest to SAFO readers are the 16 color side-view drawings of Hurricanes of 303

(Polish) Squadron, including 'RF-J' with an unusual diagonal red band on the rear of the fuselage.

The spate of books from France on the Battle of Britain can be recommended only for those interested in the subject who either read French fluently or modelers wanting to build a collection of aircraft that served in the Battle.

Review copy provided by José Fernandez of TMA.

Aviation History Colouring Book

Ian K. Baker, 31A Mercer St., Queenscliff, VIC 3225, Australia. Booklets are obtainable by mail order to anywhere direct from Ian Baker. Prices vary, most being around A\$10-A\$15 within Australia. Many previous issues still available. Booklets are also stocked by several specialist bookshops and hobby shops. Find them on the Internet. USA: M&Models (Illinois). UK & Europe: Mushroom Model Publications (Herts). NZ: NZ Models (Invercargill).



Flying Against the Rising Sun, Pt. 2: China vs Imperial Japan. China Central Government 1937-42. A collection of interesting Chinese Air Force colour schemes and markings. AHCB #58. 32 A-4 pages.

Ian Baker's misnamed Aviation History Colouring Books have been reviewed often in this column and, as always, Ian's comments are a better introduction than anything I could write.

"The aircraft involved in the Spanish Civil War have long held a fascination for many. This has been largely, one suspects, because of their variety and that certain evocation of another time and place rediscovered. Meantime the perhaps even greater variety of 1930s aircraft actively employed by the Air Force of the Kuomintang Central Government of Chiang Kai-shek in the air over China against the invading Imperial Japanese has remained largely unexplored. -Especially their camouflage and markings.

"Certainly the rare and fascinating sight of Curtiss Hawk III biplane fighters in combat with Imperial Japanese Army Ki.10 biplane fighters, for instance, or Vought Corsair biplanes and Northrop Gamma attack bombers swooping down on enemy shipping, can seem far more exotic than all those familiar WW.2 combat scenes involving much more well-known aircraft types.

"And so I decided it was time to assemble a few details for Aviation History Colouring Book to run under our Flying Against the Rising Sun title. A few details! Before long, the quite extraordinary variety of 1930s aircraft, their camouflage and markings, took over... it became clear that this subject was bigger than had been imagined at the outset, even when confining my attention to combat aircraft only. Aiming for a sampling of just a few representative types became hopeless. How could I ignore the Breda Ba.27, Bellanca or Gloster Gladiator, for example? Consequently, AHCB #58 grew to become the first of two booklets devoted to this subject.

"It has been a fascinating task to assemble the information contained in AHCB #58 & #59 although it has taken far longer than planned. A great many facets of this information remain incomplete or uncertain. I have sought to make it abundantly clear in the text where those doubts and uncertainties lie. AHCB does not present guesswork as fact. A few photographic images have also been selected for inclusion, not for padding or decoration, but only where they usefully affirm or complement particular points, even if they were not of good quality. If any reader has something to usefully add to what may be found here, I will be more than happy to pass it on to everyone in a future booklet's Updates section."

The contents of both volumes consists of a short, but highly informative history of each aircraft type's procurement by the Central Government and its subsequent service history in China. This is followed by a detailed discussion of the colors and marking carried by the aircraft while in China.

The following aircraft are described in text, drawings, and photos: Vought V-92C Corsair (one photo); Northrop Gamma 2E (one photo); Curtiss Hawk II and Hawk III (2 photos); Breda Ba.27; Boeing Model 281 (one photo); Fiat CR.32; Curtiss Export Shrike; Martin Model 139WC & 139WC-2 (one photo); Heinkel He 111A-0; Vultee V-11; Bellanca 28-110 (one photo); Tupolev SB; Polikarpov I-152 (I-15bis); Polikarpov I-16 Type 10; Dewoitine D.510C; and Gloster Gladiator Mk I.

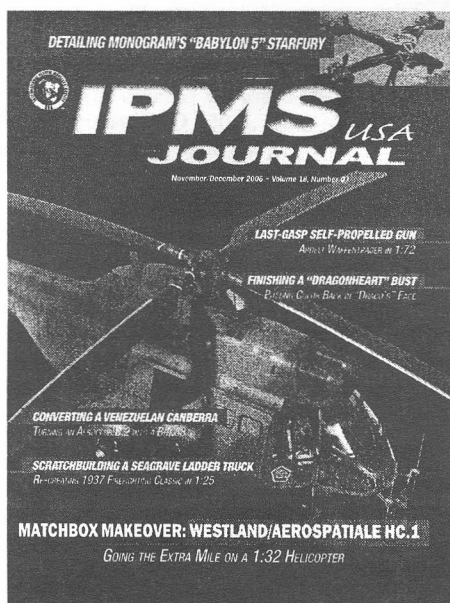


Flying Against the Rising Sun, Pt. 3: China vs Imperial Japan. China Central Government 1937-42. More interesting Chinese Air Force colour schemes and markings. AHCB #59. 24 A-4 pages.

This volume continues the coverage began in the monograph described above. The aircraft covered are: Curtiss Hawk H-75H & M (one photo); Ilyushin DB-3; Curtiss Hawk 81-A-2 Tomahawk; Vultee Pursuit Model 48C P-66 Vanguard (2 photos); Republic RP-43A-RE / P-43A-1 Lancer (3 photos, no drawing); Curtiss H-87 P-40R Warhawk Kittyhawk (2 photos); Nakajima Type 91-2 Kwangsi Air Force. Also included are short descriptions and one photo of each of the following: Kwangsi Air Force Avro Avian IVM & Armstrong Whitworth AW XVI and Chinese Savoia SM.72. The 2-page section on color notes provides FS595 (as well as Methuen & BS) equivalents for the colors used on Russian & US aircraft sent to China and the enigmatic Chinese "dark dull green" and "insignia blue".

These latest two additions to the AHCB series are highly recommended to anyone interested in air combat during the Sino-Japanese War and to all modelers contemplating adding Chinese aircraft to their model collection.

Review copies provided by Ian Baker of AHCB.



IPMS/USA Journal, November/December 2006, Volume 18, Number 7. Bimonthly, \$25 in USA \$30 in Canada and Mexico, \$32 for all others. Foreign subscribers, pay by International Money order or checks drawn in US funds. IPMS/USA, PO Box 2475, North Canton, OH, 44720-0475, USA.

Since this is the first issue received as part of our exchange agreement, I'll list all articles in this issue regardless of their small-air-force content. In the future, all issues of the *Journal* received will be reviewed in the abstract department of SAFO only for their small-air-force content.

The issue of the IPMS/USA *Journal* at hand presents a wide variety of modeling areas including aircraft, creepy-crawlers, sci-fi, figures, ships, and civilian vehicles. All the main articles are about prize-winning models, have detailed descriptions of the techniques used, and are illustrated with many color photos of the completed model. In addition there are sections for book reviews, a member's gallery, and a collection of photos from an aviation

museum. This issue also has several pages devoted to the rules and categories for the 2007 National Convention in Orange County.

Let look at the articles in detail: Book Reviews: "The Messerschmitt Bf 110 In Color Profile 1939-145"; "Avro Vulcan"; "Grumman F-14 Tomcat: Bye Bye, Baby!"; "US Marine Corps and RAAF Hornet Units of Operation Itaqi Freedom"; one page each. "Submarine Colors - PinkUSN Subs, Real and Fictional", one page including 4 silhouettes. "Making the Most of Monogram's 1:72 Starfury Babylon 5 Biohazard", 6 pages including 12 photos of the completed model. "Canberra - Venezuelan Style: Turning AeroClub's 1:48 Kit into a B.(I) Mk.88", 6 pages including 14 color photos of the completed model. "Last Gasp Gun - Ardel Waffentrager: Bill Powers scratchbuilds a small-scale self propelled gun", 6 pages including 13 color photos of the completed 1/72-scale model. "Modeling the RAF Puma HC-1: Going All-Out on the Vintage 1:32 Matchbox Kit", 8 pages including 19 color photos of the completed model. "Medieval Dragon: Building a Bust of Draco from the Movie 'Dragonheart'", 4 pages including 8 color photos of the completed bust. "Scrathbuilding a 1937 Seagrave Model JWF Tractor-Drawn 100' Aerial", 6 pages including 17 color photos of the completed model. "Members' Gallery", 2 pages with 8 color photos. "Photos from the Leathernecks Aviation Museum", 2 pages with 14 color photos.

The IPMS/USA *Journal* is the equal of the slickest commercial modeling magazines, with an all-color format and articles by the best modelers in the country. However, I somehow long for the old days of the IPMS/USA *Quarterly* when the articles where all in black and white, there were plenty of photos of the full-scale subject, drawings of color schemes, and the articles were on projects that were within the capabilities of the average modeler. I have no doubt that the prize-winning models shown in the *Journal* will encourage some modelers to improve their modeling techniques, but I wonder how many modelers have the time and money to strive for models the caliber of those presented in

the *Journal*. But, considering the cost of kits, are the days of the dilettante* modeler past?

^Webster's Collegiate Dictionary defines "dilettante" as "a person having a superficial interest in an art or a branch of knowledge".

Aero Journal #48 Avr-mai 06. 76 A-4 size pages.

Aero Journal goes out with an issue with a lot of small-air-force interest. SAFCH member Dan Hagedorn contributes an article on Latin American F-80/F-33 "Estrelian fugaces" (You don't have to know much French to translate that title.) This 16 page article includes 21 photos; many in color [Bolivia (3), Cuba (1), Colombia (2), Peru (2), Dominican Republic (2), Chile (1), Uruguay (2), Brazil (1), Ecuador (2), Mexico (2), Guatemala (2), Nicaragua (2), Honduras (1), El Salvador (1), and Paraguay (1). The French-language text cover each country in the usual detail expected of Dan.

Another article of interest to SAFO readers is: "Le Svenska Aero J6 Jaktfalken" that describes the Swedish biplane Jaktflak in 3 pages including 7 photos. [Ed: The 1/72-scale resin kit of the Jaktflak J6A/B by Daedalus is available from the SAFCH Sales Service for \$30.00.]

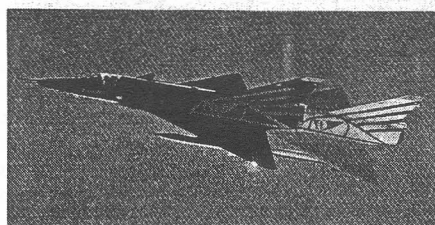
Other article include: "Au service de l'ennemi" 2 pages with color side-views of 12 aircraft in the markings of the enemy. "A motley collection of oddities" 2 pages with 15 color side-views of fairly unusual aircraft, e.g. Egyptian Percival Q6, Thai Vought V.93S Corsair, French Salmson D.7. "Les Francais dans la Bataille d'Angleterre" 20 pages including 19 photos. "Le massacre du dimanche des Rameaux" 5 pages including 6 photoa and 3 color side-view drawings (USAAF P-40F). "Le mystere Walter Oesau" 8 pages including 11 photos and 5 color side-view drawings [Me 109 (3), Fw 190 (1), P-38 (1)]. "Droles de dames" 6 pages including 4 color side-view drawings [Yak 1 (3) & Yak 7 (1)].

[Editor's note: This is the last issue of this French-language magazine. The publisher will begin a new magazine with the title **Dog Fight**. A subscription to the first 6 issues of Dog Fight is 35€ in France and 45 € all others. Write: Aero-Editions, BP 31, 47551 Agen-Boe Cedex 1, France.]

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Bye-bye-Mirage III

100 Fotos - Chronologie - Pilotenstories - Flugzeugdaten



Incl. English text



Bye-Bye Mirage III: The end of a fascinating period of the Swiss Air Force. CD-ROM produced by Stefan Wunderlin, Aerodoc, Folchartstrasse 19, CH-9000 St.Gallen, Switzerland. Email:

aerodoc@swissonline.ch. Web site: www.bye-bye-mirage.ch.

CD-ROMs are becoming more popular as a means of providing large amounts of data and/or a great number of color photographs. As an example of this trend is the release by Aerodoc of Switzerland of a CD devoted to the Dassault Mirage III in Swiss Air Force service. The CD provides the choice of either German or English, so I'll let the author (producer) provide the background:

"The withdrawal of the last Mirages, in December 2003, brought to an end one of the most fascinating periods of the Swiss Air Force. After the decision to buy 100 Mirage aircraft in 1961, massive increases in cost led to a political crisis and to a reduced production of only 57 aircraft. However, the final product was a masterpiece with a very modern fire control and navigation system, paired with excellent weapons and flight characteristics. This series of 100 photographs shows all the versions used by the Swiss Air Force.

Many modifications are documented and many different paint schemes are represented. Important historical facts are described in the chronology and history of individual aircraft. The pilots' stories that are included, give us the feeling of the challenges and the fascination of flying fast jet aircraft."

The presentation is in three main sections: (1) "Chronology" A chronological listing of the main events in the service history of the Swiss Air Force Mirages from the recommendation for evaluation in 1958 to decommissioning in 2003. (2) "Photographs" 100 color photos almost entirely of the full aircraft with a few close-ups of unit insignia. Each photo is caption with the aircraft registration, place and date photo was taken, and the name of the photographer. (3) "Individual aircraft data" for the Mirage IIIBS/DS/C; IIIS; and IIIRS. The history of each Swiss Mirage by date and

description of the event. "Pilots' Reports" Lieutenant Colonel Aridio Pellanda (ret.), Mirage IIIBS/IIIS; Lieutenant Colonel Jens Dill, Mirage IIIS; Colonel Walter Böhm (ret.), Mirage IIIRS; and Major Markus Zürcher, Mirage IIIRS.

The CD is a breeze to navigate. The links to the various sections are easy to follow, even for the

less computer-savvy viewer. The photos are grouped six to a page, but clicking on any one brings up a full-screen view. This CD-ROM is available from the Aerodoc; Price to European countries: 48 CHF, 30 Euros, 20 £. Price to all other countries 56 CHF, 35 Euros, 45 US\$. Price includes airmail delivery in all cases. This CD-ROM is

recommended to everyone interested in the Mirage III and/or, the Swiss Air Force.

Review copy provided by Stefan Wunderlin of Aerodoc. [Ed: Also available from Aerodoc: Bye-Bye Mirage III as a 50 minute DVD. I hope to review this at a latter date.]

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"Concerning your very kind remarks about Kuulumiset 24 in the latest issue of SAFO that was, as always, very interesting, I'd like to add that two kits of the Gourdou Lesseure DO exist. Both are resin; one from Dujin, that should have been disappeared from the market by now, and a more recent one from Czech Omega featuring Latvian markings and is being sold for about 30 Euro - quite a lot of money! And the mirror-imaged Hakaristi can be found on GAL decal sheet No.1.

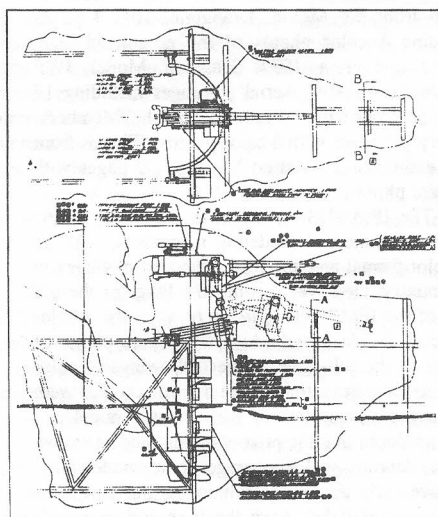
"Now it's time for questions: The first one is about Bell AH-1 Cobra used by the Bahrain Air Force. Two Bobs released some time ago a decal sheet in 1/48 called, I think, 'Foreign Cobras' that included markings for one of these choppers. Using the recently released Zotz 'Middle East Roundel' set, I would like to build this AH-1 in 1/72 scale. For this project, a photo-copy from the instructions of the above-mentioned sheet would be useful. Can you help me here, e.g. by placing an ad in SAFO?

"Question two is about the T-6. In one of the older issues of the French magazine Avions, an article about Syrian armed Harvards used during the Israeli War of Independence was published - real Small Air Forces stuff. But when modeling these a/e, details are needed about the rear cockpit configuration when a machine gun was carried. Let's assume, that the instrumentation and controls there were not changed (Don't touch the production line!). Brian Derbyshire from the IPMS-UK USAAF SIG (I do talk acronyms.) suggested that a ring mount including a sling seat a la SBD was installed there, but I somehow doubt if it would fit in a T-6's confined rear areas. Maybe just the back seat was turned around or replaced by a

design without back rest. Any ideas about this?"

Nils Treichel (SAFCH #1467), Gustav Adolf Str. 16, 27404 Zeven. Germany. E-mail: nrtreichel@vr-web.de.

[Ed: I found this sketch in Dan Hagedorn's *North American NA-16/AT-6/SNJ*, Vol. 11 in the Warbird Tech Series by Specilty Press. I don't know if it will of much help to Nils, so if anyone has more information, let him know.]



"Selling: As-new models: Heller 1/72 DH 89 Dragon Rapide, \$10; Pegasus 1/72 Breguet XIV B2, \$10; Classic Plane Vacuform 1/72 Breguet XIV, \$5; 1/72 Sign(Czech) Fokker D VIII, \$10; Airfix 1/72 Bristol F2B, \$4; Mikro (Polish) 1/72 LWS Czapla, \$3, Toko 1:288 An-26 \$3. Magazines & Books: Profile #61 SVA Scouts, \$4; Skrzydla #14 (Polish) AN 2, \$8, Squadron/Signal Finnish Air Force \$8,

Warplane #74, Mil Mi 8, \$3; Insignia Estonian AF book and decals, Latvian AF book and decals, \$12 each, Insignia Lithuanian AF book only \$8; World Air Power Journal, spring '98, including Belgian, Irish, Lithuanian AF, \$8; Guide to Airbrushing, \$3, Modeling Tanks and Military Vehicles, \$3, Decals: Blue Rider 405 Middle Lithuania (Breguet XIV), \$4. Plus other Blue Rider and small AF decals to sell or trade. Write for details!"

Ed Vaitones (SAFCH #1412), 16 Berry Ct, Milford, NH 03055;USA, E-mail: ecvaitones@earthlink.net.

"I am looking for the following for modeling projects that I have planned, and would appreciate your putting my requests in the wants and disposals section: (1) 1/72 scale Siam Scale Canadair CL-215 Royal Thai Navy decals, and (2) information such as clear pictures or drawings of the triangular markings on the fuselage of the Grumman G-23 or GE-23 Goblin biplane fighter in Nicaraguan service or, even better, 1/72 scale decals. There are rather unclear pictures and drawings in Flying Colors by Green and Swanborough and Grumman Biplane Fighters in Action by Squadron. I would happily pay reasonable prices for these decals."

James Wilcox (SAFCH #710), 786 McLaren St., North Bay. Ontario PIB 3LB, Canada. E-mail: jwilcox@partnersinlaw.net.

"Wanted: I am interested in exchanging photos of aircraft and helicopters with Special Markings."

Ric Karbowski (SAFCH #993), 21708 Tenny, Dearborn, MI 48124-2937, USA. E-mail: rkarbowski@hotmail.com.

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"I would like to direct your attention to an excellent web site dedicated to Uruguayan Aviation in general and the Uruguayan Air Force in particular: <www.pilotoviejo.com>. It's run by an ex-FAU pilot now living in Costa Rica: MAJ. Jorge Cobas. In this web site, you will find a page dedicated to the history of the Tiger Moth in our Air Force and many other aircrafts"

Eduaro Luzardo (SAFCH #1383), Picardia M.267 S.37, 91001 Barros Blancos, Uruguay.

"I do not know if this is the kind of info which can interest the readers of SAFO, but here is a link to a Turkish Air Force photographic inventory from their creation until nowadays."

<http://216.239.59.104/search?q=cache:wzWd9EHe3AkJ:www.tayyareci.com/digerucaklar/turkiye/index.asp+T%C3%BCrk+Hava+Kuvvetleri&hl=tr&ct=clnk&cd=2&gl=tr>

Jean-Yves Goffi (SAFCH #427), 48 passage Henri Murger, 73000 Chambéry, France.

Old Eagles: Stories of Desperation

[Editor's note: William Elmore (SAFCH #1693) is working on a book about the biplanes that saw combat during WWII. He sent me a 6-page list of eligible biplanes (by country) and asked if any SAFO readers would like to help in this endeavor. If you're interested, contact Bill at: William Elmore, 122 Beaujolais Dr., Florissant, MO 63031, USA. E-mail: mouldiefiggue@charter.net. If you offer your help by snail mail, include a business-size SASE (2 first-class stamps) for a copy of his list.]

While the subtitle of this book, "Combat Biplanes of World War II," appears to be rather straight forward, it is not - there must be qualifiers. For example: what is meant by combat? What defines a biplane? When was World War II and who were the participants? These questions which may, at first, hand, seem trivial but their answers establish the qualifications for inclusion in this rather select list of warplanes. While most of those qualifying for this list were considered to be ancient warriors when their country entered the war, there were a few which did not begin their service life until after their country of origin entered the war. The following, then, is the basis of the qualifications for inclusion in this list:

Combat: A combat airplane is one that was assigned to a combat role. Combat units had supporting airplanes assigned to their organization but these were never considered in the combat strength of the unit nor were they expected to meet the enemy in combat. When, however, situations became dire and supporting airplanes were pressed in a combat role, then these must be considered as combat airplanes also although many of such airplanes were unarmed. Combat units were expected to confront the enemy and, as such, their aircraft were usually armed, i.e. equipped to carry guns, torpedoes, bombs or any such weapons. This is not an absolute requirement for inclusion in this list, however. Some unarmed airplanes were assigned to combat roles that normally would have been accomplished by armed airplanes but, because of the expediciencies of war, this was not always possible. This writer believes these previously ignored combatants should be recognized for their heroic service. In an inverse manner, there were many combat airplanes that never saw an enemy, however, they were assigned to a combat unit during the time their country was at war and expected to confront the enemy whenever the time arose. These silent sentinels are included also.

Many bi-planes that began service in the various in combat units but were obsolescent by the time their country entered the war, were relegated to training schools where they were used to introduce tyro pilots to airplanes that approached the performance of the newer equipment that replaced them in the combat units. These obsolete airplanes are omitted from this list; however, there were several instances when some were recalled to combat duty from these training roles during the war and these airplanes, then, are included in this list.

Not all military airplanes are combat airplanes. Transports, trainers, utility or support

aircraft are not considered to be combat aircraft. Usually considered as combat aircraft are fighters, bombers, and, reconnaissance aircraft. It is not the intent for which the airplane is procured, however, that determines its inclusion in this list of old warriors. What determines the combat status of the aircraft is the role it performed or was assigned to perform. England, Germany and Russia, for example, used training aircraft in combat roles. These roles would normally have been performed by specifically-designed aircraft, but the expediciencies of war often demand any suitable aircraft to be rushed into battle.

Biplane: Normally, a biplane would be considered as any airplane having two separate primary lifting surfaces. This seems to be a rather simple and direct definition. There is within the category of biplanes, however, the sesquiplane must be considered also. A sesquiplane has been defined as a biplane where one lifting surface has an area less than half of that of the other lifting surface. Most sesquiplanes have the lesser surface not much less than half of the major surface but there are some instances where the smaller surface is markedly smaller. In most, but not all, instances that smaller surface is also a sponson for flying boats. In these instances, then, these flying boats are considered to be monoplanes and the sponson's contribution to the total lift generated by the two surfaces to be not much greater than the weight of the sponson itself.

World War II: The Twentieth Century was one hell of a time. During the years bracketed by 1900 and 2000, the world was in turmoil. There was a seemingly continuous series of wars - some hot, some cold - waged during those one hundred years and many empires were dissolved and new ones formed. New countries were created and some later dissolved. Many country borders were relocated and political maps changed radically and often. Conflicts migrated from one region to another until, by mid-century, most of the world was embroiled in a single, massive conflict which became known as World War II. This war was fought on land, on and below the seas, and in the air. Historians debate the start date of World War II with some contending it was but a continuation of World War I which began in August 1914. Other historians say it started when Japan invaded China and seized Peiping and Tientsin in July 1937. Others claim the war began when Germany attacked Poland. There are valid arguments for all of these dates, however, the specific time frame selected for this collection of combat airplanes begins with the German invasion of Poland and ends with the

peace treaty signed in Tokyo Bay: all national aggressions during the six year period between 1 September 1939 and 2 September 1945 are considered to have been acts of war associated with WW II. All countries that were involved in any invasion or combat with another nation or who formally declared war on any participant identified earlier during this interval are considered to have been a participant in this war also. Finland, for example, fought two wars with Russia during this interval. The first is often referred to as the Winter War and the second as the Continuing War. In the context of this collection, however, these two conflicts are considered as campaigns in the overall conflict defined here as World War II.

There were six notable conflicts prior to the German invasion of Poland that are not included in this series of conflicts defined here as World War II. They merit mention because many of the same airplanes that were used in these earlier conflicts were subsequently used in WWII and their mention here also aids the reader to better understand some of the events listed below. In Europe, these conflicts included: the Spanish Revolution during the 1936-1939 time period and the Hungarian-Slovakian border dispute of 1939. In Africa, the Italian conquest of Ethiopia which set the stage for the Eastern Africa campaigns of 1940. In eastern Asia, these earlier clashes included the occupation of Manchuria by Japan in 1931-32, the brief war between Japan and Russia along the Siberian-Korean border of July-August 1938, and the Second Sino-Japanese War that began in 1937 and continued into WW II.

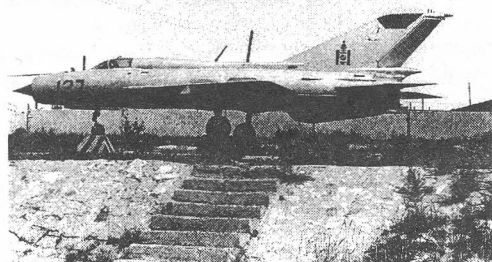
Not every country that was involved in the conflict entered the war on the 1939 date. For example, the United States did not declare war on Japan until after the 7 December 1941 attack on Pearl Harbor. Combat biplanes that were in the United States armed forces between September 1939 and December 1941, therefore, are not included here unless they remained in or were assigned to a combat unit after December 1941. For example, some Grumman F3F-2 fighters assigned to the Marine Corp Fighter Squadron VF-211 were replaced only a few weeks before the attack on Pearl Harbor; they are not included. The Curtiss SBC-4 dive-bombers, however, assigned to combat Navy Squadrons VB-8 and VS-8 were aboard the carrier U.S.S. Hornet at the time of the attack and are included although they never engaged an enemy.

William Elmore, 122 Beaujolais Dr., Florissant, MO 63031, USA. E-mail: mouldiefiggue@charter.net.

"SAFO #118 came a little while ago As always there is a great deal of thought-provoking revelation on matters previously unknown! I see that you refer (p. 40 under AIR MAGAZINE) to a Saar Ar 79 (with civil registration) as perhaps the "ultimate" (one-plane air force. But, in WW II (ca. 1943?) a Kuomintang SB 2-M103 defected to the Japanese and was thereupon "transformed" into the Cochinchina Air Force: Its one and only a/c, as far as I know. I cannot put my hands on a picture at the moment though it appeared somewhere --if and when I find it I will send it.

"I enclose a photograph of a Mongolian MiG-21 in case you can fit it in. Not too bright a print--if I go again I'll do better and in color--but it is a slow business getting Mongolian a/c pix!"

Denys Voaden (SAFCH #1483), 8616 Edmonston Ave., College Park, MD 20740, USA. E-mail: djvokey@yahoo.com.



"I am still selling models and helping the producers with kit ideas. I need some help here that is right up your alley. I need info on the Colombian Curtiss OE-1 Floatplane 'Ricaurte Mundo al Dia' flown to Colombia in 1938. First, what does this name mean? Also, the national insignia in the photos shows an 8 pointed star in the center of the roundel; not a 5 point like today. Is it also possible that the positions of the colors on the roundel are different too? The insignia on the bottom wing shows the roundel at the wing tip with the light color at the trailing edge. I think that it might be to set off the red of the roundel because the entire plane is high-gloss red. I have no info on the roundels position on the upper wing surface."

Joe Francesco (SAFCH #836), PO Box 81, Verona, NJ 22033, USA. E-mail: joe francesco@comcast.net.

[Ed: I sent this request to Dan Hagedorn for his comments. His reply follows:]

"The name of the aircraft was 'Ricaurte' in honor of a Colombian patriot of the revolutionary period (independence from Spain). 'Mundosal Dia' was the name of a Colombian newspaper that helped sponsor the flight of the aircraft from the U.S. to Colombia in November 1928 (not 1938). Calling the aircraft an 'OE-1' is grossly in error. It was simply an export Curtiss Falcon with a D-12 engine, sometimes called (by Curtiss) a Curtiss D-12 Falcon. The aircraft was actually 'owned' at the time of the flight by the pilot, Major Benjamin Mendez, who purchased it (for \$21,000) with a combination of funds from popular subscriptions, the newspaper (which helped with the subscription) and minor government support. He then 'sold' it to the Colombian Government by 6 April 1931.

"Your observation about the star in the national insignia is correct. However, the colors were as we know them today. How the aircraft came to be called 'red overall' is a mystery to me. I believe it was olive drab overall. The lower right quadrant of the Colombian national insignia's 'outer ring' is known to be a bright red. Contrast that with the known photos of the aircraft, and it is clearly 'darker' than the rest of the aircraft. The aircraft suffered a rather serious accident en route to Colombia in the waters off Colon, Republic of Panama. It was recovered and repaired by the US Navy at Coco Solo Naval Air Station. It is my suspicion that the odd color you see on the wing might have been incident to the repairs to the ailerons and wings done by the USN.

"As a footnote, this aircraft took off from Potosi with Captain Esguerra at the controls on February 18, 1933 and was never seen again. Oddly, however, another source gives the point of departure as enroute Caqueta region bound for Flandes and the date 2 June 1933!"

Dan Hagedorn (SAFCH #394), 13125 Pennerview Lane, Fairfax, VA 22033, USA. E-mail: danielhagedorn@cox.net.

[Ed: Dan's new book, *Latin American Air Wars and Aircraft 1912-1969* has 4 photos and a color side-view drawing of "Ricaurte" that support Dan's conclusions. Also, see John Cochrane's *Military Aircraft Insignia of the World*

for color drawings of the Colombian insignia with the 8-pointed star from 1925-1953 and the 5-pointed star from 1953 to the present.]

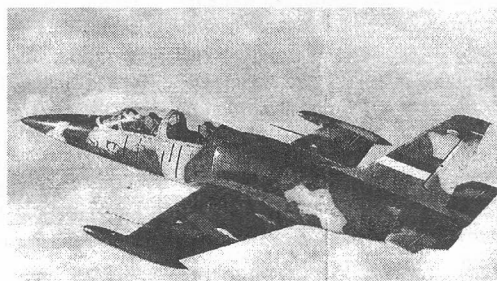
"A new aircraft type has emerged carrying the Estonian national triangle. This is the Aero L-39C Albatros. It is questionable how thoroughly military the aircraft is, as it belongs to a civilian company and carries Estonian civilian registry codes ES-RAZ. It is, however, used for training military pilots (as is another similarly civilian registered L-39). ES-RAZ carries the company logo of Aerohooldus OÜ (OÜ is an abbreviation similar in meaning to Ltd.). According to Jan Koennig in www.jetjournal.net the owner of both aircraft is Musket OÜ, a Tallinn-based company, leasing the aircraft to the Estonian AF.

"A 28 November 2006 newspaper article describes a flight onboard ES-YLP (as stated in the article, could also be ES-YLZ), doing air-to-air photos of ES-RAZ. The article states that ES-RAZ was piloted by lieutenant Mati Sikk.

"<http://forum.keypublishing.co.uk/showthread.php?p=1021787> has photos of ES-RAZ and ES-YLZ. Note that these photos are undated (posted 24 September 2006, thus older); in the meantime, ES-RAZ got the Estonian tricolor band on the tailfin in place of the earlier yellow-black chessboard pattern. According to <http://www.futura-dtp.dk/Flysiden/Fly/Tjekki/L39ES.htm>, these two aircraft have been leased for the period May-December 2006 to train three Estonian AF pilots.

"<http://www.airgroup2000.com/forum/viewtopic.php?p=945330&sid=99188874d44e272228a7a4b37f0b309> (in Bulgarian, it seems) adds that 270 flying hours are to be produced for the three pilots' training program, and that the Estonian AF operates five An-2 and four Robinson R-44 at the moment."

Kai Willadsen (SAFCH #863), Sankt Jorgensgade 16, 4200 Slagelse, Denmark. E-mail: kai.willadsen@ofir.dk



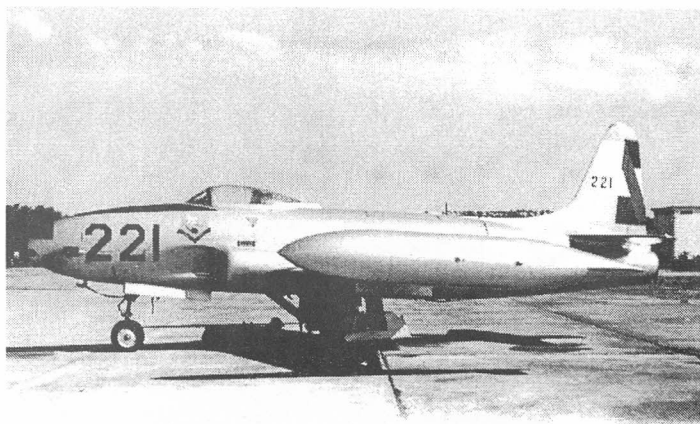
"I am trying to build a model collection of aircraft from all countries, using the Zotz 'Roundels of the World' decal sets. There are several air forces for which it has proved exceedingly challenging to locate information: Benin (Have info on their Cessna 337s, but nothing else). Bhutan (Understand they use an Mi-4 helicopter). Cape Verde (Have info on the new markings, but not the old). Burundi (Have info on SF-260W, but no model of this one!). Comoros (Have info on a C-47, but nothing else). Equatorial Guinea (I would love info on their MiG-17s!). Fiji (Have info on one Ecureuil chopper, nothing else). Liberia (Have one photo of a helicopter from rear). Sao Tome (Have photos of civilian, not military aircraft). Tajikistan (No photos of military aircraft). I would appreciate any information on markings and colors for military aircraft from these countries, especially photos and/or profiles!

"Other things I am looking for are photos or profiles of P-38 Lightnings or Douglas A-24s in 1948-1949 Costa Rican markings. I understand that Costa Rican markings of the period were the reverse of pre-WWII USAAC markings; that is, a white five-pointed star containing a blue central dot, the star within a red circle. I would love to build a model of one of these!"

Greg Kozak (SAFCH #1599), 46590 Broadspire Terrace, Sterling, VA 20165, USA. E-Mail: gkozak@starpower.net

"I am writing you after reading *Finnish Nieuport One-and-a-Half Wings* by Nils Treichel published into SAFO Vol.30, No.3 (#119) January 2007 (page 88). Having read it, I would like make some comments: The author writes, 'The Finnish Nieuport 10s and the 21 were built by the Russian DUKS company and most probably the 17s too.' The Nieuport 17s WERE built in Russia. Those were the Nieuports having one or two machine-guns. The best were with the firing mountings made by a scheme of Kiev engineer Vasily Vladimirovich Yordan. These Nieuports had Rhone 110 hp engines. From 1916 to 1929, more than 700 aircraft of such a type were in Russia, that was approximately a half of the total fighter aircraft inventory of Russia."

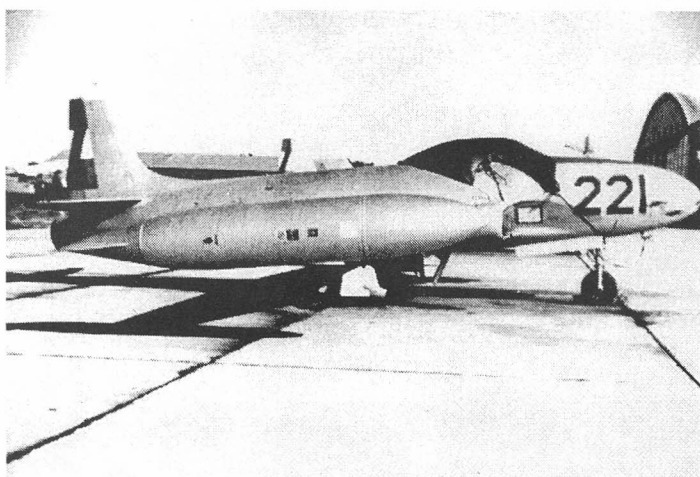
Igor N.Gordeljanov (SAFCH #1066), ul.Strijskaja, 181, kw.18, Lvovskaja obl., g Drogobych, 82100. Ukraine. E-mail: gordeljanow@yahoo.com



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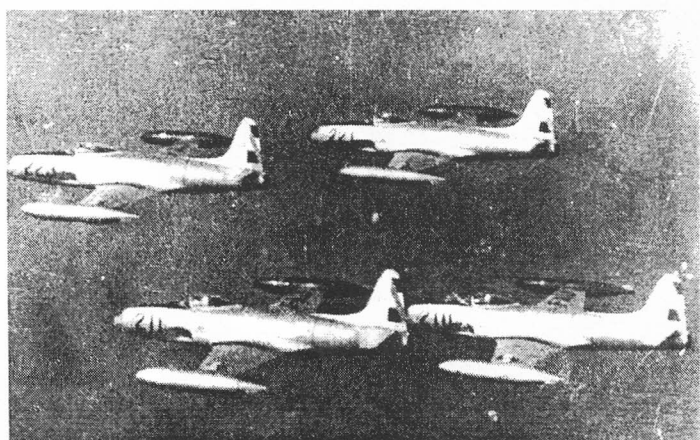
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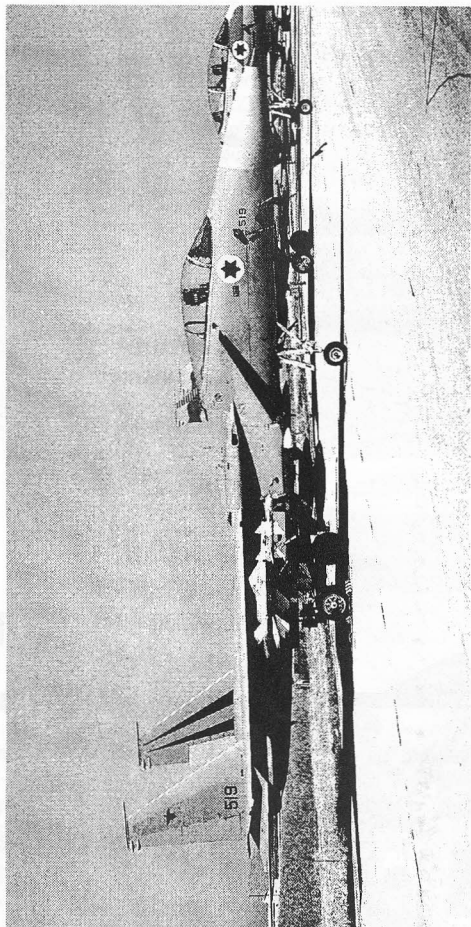
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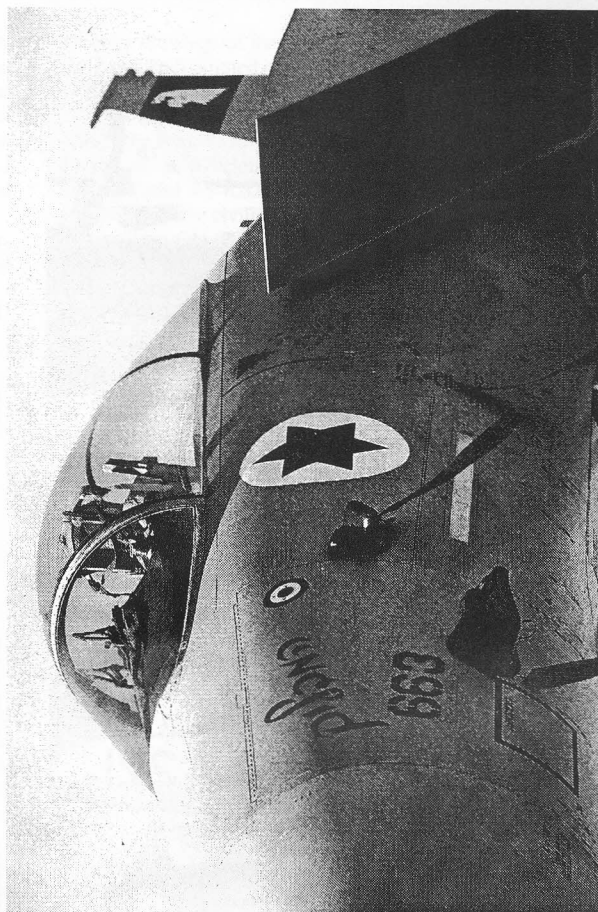
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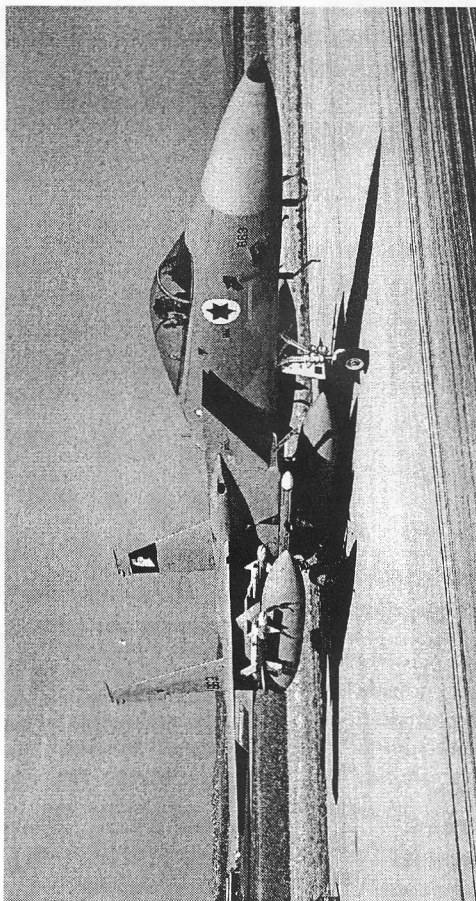
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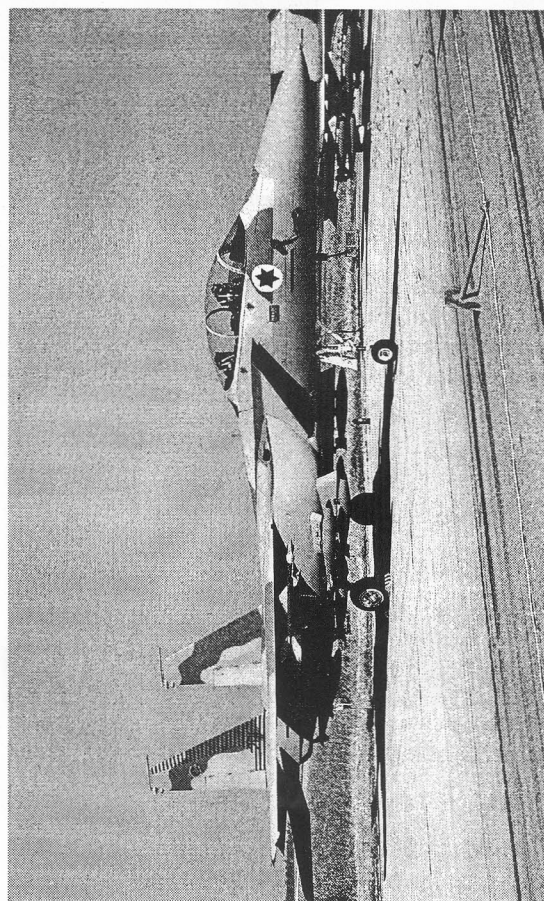
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